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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL J. ZURAW

Appeal 2011-013166
Application 11/799,136
Technology Center 1700

Before RICHARD TORCZON, MICHAEL P. COLAIANNI, and
GRACE KARAFFA OBERMANN, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 the final rejection of claims 1-19. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b). A hearing was held in this appeal on January 15, 2013.

We AFFIRM.

Appellant's invention is directed to an anode material made of a zinc alloy comprising indium, bismuth and aluminum (Spec. 1:23-26).

Claim 1 is illustrative:

1. An anode including particles comprising an alloy comprising zinc and from about 30 ppm to about 90 ppm indium, from about 30 ppm to about 90 ppm bismuth, and from about 5 ppm to about 25 ppm aluminum.

Appellant appeals the following prior art rejections:

1. Claims 1, 4-8, and 13-19 are rejected under 35 U.S.C. § 103(a), as being unpatentable over Shinoda (US 2004/0191624 A1, published Sep. 30, 2004) in view of Christian (US 2004/0043292 A1, published Mar. 4, 2004).
2. Claims 2, 3, and 9-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinoda in view of Christian and Costanzo (US 2004/0258995 A1, published Dec. 23, 2004).

Appellant only argues subject matter common to independent claims 1 and 19 under rejection (1) (App. Br. 2-5). We select claim 1 as representative. As appellant does not separately argue rejection (2) of dependent claims 2, 3, and 9-12, those claims will stand or fall with our analysis of the Examiner's rejection of independent claim 1 under rejection (1).

ISSUE

Did the Examiner reversibly err in finding that in light of the teachings of Shinoda and Christian one of ordinary skill in the art would have optimized the amounts of aluminum, indium, and bismuth in the zinc alloy and in so doing arrive at the claimed zinc alloy composition having the claimed

amounts of aluminum, indium and bismuth? We decide this issue in the negative.

FINDINGS OF FACT AND ANALYSES

The Examiner's findings and conclusions may be located on pages 3-4, and 6 of the Answer. Specifically, the Examiner finds Shinoda teaches a zinc alloy used for anodes in batteries having 500 ppm indium, 130 ppm bismuth and 80 ppm aluminum (Ans. 3). The Examiner finds that Shinoda does not disclose the ranges of aluminum, indium and bismuth recited in claim 1. *Id.* The Examiner finds that Christian teaches aluminum, indium and bismuth may be in zinc alloy anode materials to inhibit gassing in the anode and that the gassing inhibitor may be used in "minor" amounts (Ans. 3, 6). The Examiner concludes that it would have been obvious to vary the amount of bismuth, indium and aluminum to values within the claimed ranges so as to inhibit gas in Shinoda's zinc alloy anode material because Christian recognizes these elements as result effective variables for gas inhibition (Ans. 3, 6).

Appellant argues that Shinoda and Christian exemplify zinc alloy anode materials aluminum, bismuth, and/or indium amounts outside the claimed ranges (App. Br. 4-5). Appellant contends the Examiner's rejection is devoid of any rational underpinning why one of ordinary skill in the art would have optimized the amounts of bismuth, aluminum and indium to amounts with the claimed range (App. Br. 5). Appellant argues that one of ordinary skill would have optimized Shinoda's or Christian's aluminum, bismuth, and indium amounts at the greater amounts exemplified in the

Shinoda and Christian and thus not arrive at the claimed lesser amounts of these elements (App. Br. 5).

We find that the preponderance of the evidence favors the Examiner's conclusion of obviousness. While there is no dispute that Shinoda and Christian exemplify zinc alloys with amounts of aluminum, bismuth and indium outside the claimed ranges, Christian discloses that aluminum, bismuth and indium may be used in "minor" amounts (Ans. 6). Christian further teaches that aluminum, indium and bismuth are gas inhibitors (Ans. 6). In other words, the Examiner reasonably finds that Christian discloses that the amounts of these elements are result effective variables to control gassing of the zinc anode.

Appellant does not allege any criticality in the claimed ranges of aluminum, bismuth, and indium in the zinc alloy (App. Br. 3-5; Reply Br. 2-3). Indeed, Appellant's Table 1 on pages 17-18 of the Specification does not even include comparative examples that include amounts of aluminum, bismuth or indium outside the claimed ranges for these elements in an attempt to show criticality of the ranges. Accordingly, it would have been obvious to optimize the amounts of aluminum, indium and bismuth to values within the claimed ranges and arrive at a zinc alloy as claimed. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) ("The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . These cases have consistently held that in such a situation, the applicant must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range."). *See also, In re Aller*, 220 F.2d 454, 456 (CCPA 1955).

That Christian and Shinoda exemplify embodiments that have higher amounts of aluminum, indium, and bismuth does not change the fact that Christian teaches that the amounts of these elements are result-effective to inhibit gassing of the electrode. The teachings of the art are not limited solely to the exemplified embodiments. *In re Bode*, 550 F.2d 656, 661 (CCPA 1977) (“[T]he reference must be evaluated for all that it teaches and is not limited to its specific embodiments.”). Rather, the prior art, Christian, teaches to use minor amounts of aluminum, bismuth and indium to inhibit gas formation. We agree with the Examiner that such a teaching would have rendered obvious the optimization of the amounts of aluminum, bismuth and indium in the zinc alloy to values within the claimed ranges.

Appellants’ argument that Shinoda is directed to electrolytic solutions, not zinc alloys is not persuasive (App. Br. 2; Reply Br. 2). Shinoda teaches a zinc alloy having aluminum, indium and bismuth, which may be used to leach aluminum into the electrolyte solution (Shinoda, paras. [0017], [0029]). Accordingly, Shinoda teaches a zinc alloy.

On this record, and for the above reasons, we affirm the Examiner’s § 103 rejections.

DECISION

The Examiner’s decision is affirmed.

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

ORDER

AFFIRMED

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