The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KOHEI SUZUKI et al.

Appeal 2007-1024
Application 10/231,144
Technology Center 1700

Decided: August 7, 2007

Before SALLY G. LANE, MICHAEL P. TIERNEY AND
JAMES T. MOORE, *Administrative Patent Judges*.

TIERNEY, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a 35 U.S.C. § 134 appeal in the above-referenced application[1] of the rejection of claims 10 and 12-17. Claim 9, the only other pending claim in the application is withdrawn from consideration as being directed to a non-elected invention. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

---

[1] The real party in interest is Matsushita Electric Industrial Co., Ltd. (Br. 1).

STATEMENT OF THE CASE

Applicant's invention is directed to a non-aqueous electrolyte battery. Applicant states that there is an increasing demand for high energy density batteries for use in portable consumer electronic products. (Specification 1). According to Applicant, there is a need for a non-aqueous electrolyte secondary battery having high capacity in terms of charge/discharge and cycle life. (*Id*. at p. 4).

There is only one independent claim on appeal, claim 17. Claim 17 is representative of the claims on appeal and reads as follows:

> A non-aqueous electrolyte secondary battery comprising: a positive electrode comprising a positive electrode material layer and a positive electrode core member for supporting said positive electrode material layer, said positive electrode material layer formed of a paste comprising a positive electrode active material, a conductive agent, a first binder A and a second binder B, said positive electrode active material comprising a lithium-containing transition metal oxide, said conductive agent comprising carbon black;
>
> a negative electrode comprising a negative electrode material layer and a negative electrode core member for supporting said negative electrode material layer; and
>
> a non-aqueous electrolyte comprising a non-aqueous solvent dissolving a lithium salt,
>
> wherein said conductive agent contained in said positive electrode material layer forms agglomerated particles having a particle size of less than 10 μm and a contact angle θ_A between said non-aqueous electrolyte and said binder A and a contact angle θ_B between said non-aqueous electrolyte and said binder B satisfy the formula (1): $\theta_B - \theta_A \geq 15^o$.

The Examiner has set forth four (4) prior art rejections. The rejections are as follows:

i. Claims 12-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Publication No. 11-283628 ("Tomiyama").
ii. Claims 12-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomiyama in view of Cintra, U.S. Pat. Pub. 2003/124422 ("Cintra").
iii. Claims 10 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomiyama in view of Ward, U.S. Pat. 6,197,445 ("Ward").
iv. Claims 12-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ono, U.S. Pat. 6,001,507 ("Ono") in view of Cintra.

There are two issues in dispute. Specifically, Applicant and the Examiner dispute whether the prior art inherently possesses the required binder contact angles. Applicant and the Examiner also dispute whether the prior art inherently possesses conductive agent agglomerated particles having a size of less than 10 μm.

Based upon the record presented, we affirm the Examiner's prior art rejections involving Tomiyama. As all appealed claims are unpatentable over the teachings Tomiyama, alone or in combination with the prior art, we need not reach the Examiner's rejection based upon the combined teachings of Ono and Cintra.

ISSUE

The issue is whether Applicant has shown that the Examiner erred in rejecting the claims. Specifically, the issues are:

Does the prior art teach a non-aqueous electrolyte secondary battery having a positive electrode material layer formed with a mixture of binders, where the binders have contact angles differing by more than 15°?

Does the prior art teach a non-aqueous electrolyte battery having the claimed combination of binders such that a conductive agent contained in the positive electrode material layer forms agglomerated particles having a particle size of less than 10 μm?

FINDINGS OF FACT

A. Applicant's '144 Specification and Claims

1) Applicant's claims on appeal are directed to a non-aqueous electrolyte secondary battery where battery contains a positive electrode material layer formed of a paste comprising a positive electrode active material, a conductive agent, a first binder A and a second binder B. (Appeal Br. Independent claim 17).

2) Applicant's claims require that the first and second binder materials have contact angles between the binder and the non-aqueous electrolyte that differ by 15° or more. (*Id*.).

3) Applicant claim 13, depends from independent claim 17, and states that binder A is selected from the group consisting of polyvinylidene fluoride, modified polyvinylidene fluoride and polytetrafluoroethylene. (Appeal Br., Claims Appendix, and also Specification 6).

4) Applicant's specification makes the following statement regarding binder B:

> Specifically as the binder B, (a) polyolefins having a side chain whose polarity is not so high such as hydrogenated nitrile rubber, (b) polyacrylonitrile, (c) polymers having acrylonitrile units and $-(CH_2)_n-$ portions wherein $6 \leq n$, (d) acrylic resins having a hydroxyl group, or the like are preferably used. These may be used alone or in combination of two or more.

(Specification 14).

5) Provided below is a table detailing the binders described in Applicant's specification:

Binders Described by '144 Specification	
Binder A	Binder B
1) Polyvinylidene fluoride ("PVDF"); 2) Modified PVDF, and 3) Polytetrafluoroethylene ("PTFE").	1) Polyolefins having a side chain whose polarity is not so high such as hydrogenated nitrile rubber; 2) Polyacrylonitrile; 3) Polymers having acrylonitrile units and -(CH2)n- portions wherein $6 \leq n$; 4) Acrylic resins having a hydroxyl group

6) Based upon specification's description of binders A and B, we find that binders satisfying the equation $\theta_B - \theta_A \geq 15^o$ include PVDF and/or PTFE as binder A and a binder B formed with polymers having acrylonitrile units and -(CH2)n- portions wherein $6 \leq n$.

7) Applicant's claims require that the conductive agent in the positive electrode material layer forms agglomerated particles having a particle size of less than 10 μm. (Appeal Br. Independent claim 17).

8) Applicant's specification provides the following statement regarding the conductive agent:

> As the conductive agent, it is preferable to use carbon black.
>
> Examples of the carbon black include **acetylene black**, furnace black and Ketjen black. Among them, acetylene black and furnace black are preferable.
>
> With regard to the average particle size of the conductive agent, there is no particular limitation, but the average particle size of the primary particles is preferably 0.01 to 0.1 μm.

(Specification 12, bold emphasis added).

B. Prior Art

1. Tomiyama

9) Tomiyama is directed to a rechargeable non-aqueous electrolyte battery that is said to have a high capacity and improved shelf life. (Tomiyama, ¶ 0001).[2]

10) Tomiyama describes the use of binders to form electrodes for its battery. (*Id*. ¶ 0036).

[2] The Examiner has relied upon a computer translation of the Japanese language Tomiyama reference. Applicant, whose real party in interest is located in Japan, did not object to the accuracy of the translation.

11) Tomiyama identifies desirable binders as including PVDF, PTFE, polyacrylic acid, polyacrylic acid NA as well as acrylonitrile copolymer binders. (*Id*.).

12) Tomiyama explicitly identifies two types of acrylonitrile copolymer binders: 1) acrylonitrile-butadiene copolymer, and 2) acrylic ester-acrylonitrile copolymer. (*Id*.).

13) Both of the described acrylonitrile copolymers fall within the scope of Applicant's preferred Binder B as they are polymers having acrylonitrile units and $-(CH_2)_n-$ portions wherein $6 \leq n$.

14) Tomiyama "especially" mentions PTFE and PVDF binders and states that "[e]specially as these resin, a fluororesin is desirable." (Tomiyama at ¶ 0036).

15) Tomiyama states that conductive agents may be used in the electrodes and identifies carbon black particles having a size ranging from 0.02 to 0.5 microns as most desirable. (*Id*. ¶ 0035).

16) Tomiyama Example 1 describes the formation of a positive electrode with acetylene black having a mean diameter of 0.1 microns. (*Id*. ¶ 0062).

17) Tomiyama exemplifies a positive electrode formed with acetylene black, PVDF and an acrylonitrile copolymer. (*Id*. ¶ 0070).

2. Cintra

18) Cintra describes a battery electrode. (Cintra, Abstract).

19) The Examiner found that Cintra describes blending an electrode mixture comprising a binder and carbon black until all the agglomerated particles are less than 10 microns as measured using a Hegman gauge. (Cintra, ¶¶ 0029-33).

3. Ward

20) Ward describes air depolarized electrochemical cells. (Ward, Abstract).

21) Ward teaches using carbon black catalyst having a density of 0.47 g/ml and reducing the size of agglomerated particles. (*Id*. col. 16, ll. 1-20 and col. 17, ll. 40-50).

4. Ono

22) Ono describes a non-aqueous electrolyte secondary battery that employs a binder for forming its anode and cathode. (Ono, Abstract).

23) Ono's binder is a mixture of a fluorine polymer and polyimide. (*Id*.).

C. Examiner's Answer

24) The Examiner made the following finding in response to Applicant's argument that the prior art does not inherently have the claimed conductive particle size:

> Alternatively, if the agglomerated particles are considered to not have the same size based on the equivalent process, it would be obvious to one skilled in the art to incorporate the size of conductive carbon agglomerates to a particle size taught by Tomiyama. The carbon particles act to conduct the electrons to the current collector. The more homogeneous the electrode mixture, the lower the internal resistance of the battery by having a consistent electrical path throughout the mixture. As the particles agglomerate, the surface area of the carbon decreases, which decreases the current collecting properties. Further, as the particles agglomerate, the amount of carbon material able to be equally distributed though the electrode diminishes and a spotted distribution of the conductive particles exists, thereby increasing the internal resistance of the battery.

(Answer 12).

25) The Examiner found, and Applicant did not dispute, that Tomiyama exemplifies the use of PVDF and polyacrylonitrile in a positive electrode. (Answer 11, citing Tomiyama ¶ 70).

PRINCIPLES OF LAW

Anticipation under 35 U.S.C. § 102 is a question of fact. *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In analyzing anticipation, the discovery or identification of a property possessed by a prior art composition does not render the old composition patentable. *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1346, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999).

Additionally, an invention is not patentable under 35 U.S.C. § 103 if it is obvious. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1745-46, 82 USPQ2d 1385, 1400 (2007). The facts underlying an obviousness inquiry include:

> Under § 103, the 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.

Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966). In addressing the findings of fact, "[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* at 1739, 82 USQP2d 1395. As explained in *KSR*:

> If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson's-Black Rock* are illustrative — a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR at 1740, 82 USPQ2d 1396. As recognized in *KSR*, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR* at 1742, 82 USPQ2d 1397.

On appeal, an Applicant bears the burden of showing that the Examiner has not established a legally sufficient basis for combining the teachings of the prior art. Applicants may sustain their burden by showing that where the Examiner relies on a combination of disclosures, the Examiner failed to provide sufficient evidence to show that one having ordinary skill in the art would have done what Applicant did. *United States v. Adams*, 383 U.S. 39 (1966).

ANALYSIS

There are four (4) prior art rejections on appeal. We begin our analysis of the rejections on appeal by reviewing the invention of Applicant's claims - specifically, binders having contact angles satisfying the formula $\theta_B - \theta_A \geq 15^o$.

Neither Applicant nor the Examiner has directed our attention to a reference that identifies a numerical value for the contact angles of the binders in dispute. For example, Applicant's Appeal Brief provides an Evidence Appendix that identifies only a single exhibit, which is a definition of the term "contact angle" from semiconductorglossary.com. (Appeal Br. Evidence Appendix). We therefore look to Applicant's specification for guidance.

As discussed in the findings of fact, Applicant's specification teaches that binder A is preferably PVDF, PTFE or modified PVDF. Applicant's specification teaches that preferred binder B's include polymers having acrylonitrile units and -(CH2)n- portions wherein $6 \leq n$. Acrylonitrile-butadiene copolymer and acrylic ester-acrylonitrile copolymer are polymers falling within the scope of Applicant's preferred binder B. Accordingly, in

light of the teachings provided in Applicant's specification, we find that a mixture of PVDF and/or PTFE as binder A and acrylonitrile-butadiene copolymer and/or acrylic ester-acrylonitrile copolymer as binder B satisfies the equation $\theta_B - \theta_A \geq 15^o$.

1. The Rejection of Claims 12-17 under 35 U.S.C. § 102(b) as being anticipated by Tomiyama or in the alternative, obvious under 35 U.S.C. § 103(a) over Tomiyama

Generally, claim 17 is an independent claim directed to a non-aqueous electrolyte secondary battery having a positive and negative electrode. The positive electrode is formed from two binders having contact angles that satisfy the equation $\theta_B - \theta_A \geq 15^o$. Additionally, the positive electrode has a conductive agent that forms agglomerated particles having a particle size of less than 10 μm.

Applicant argues that Tomiyama fails to explicitly teach its claimed battery having the aforementioned positive electrode. (Appeal Br. 7). As to inherency, Applicant does not contend that Tomiyama fails to inherently possess the claimed properties, rather Applicant contends that:

> In the present case, the Examiner did not discharge that burden of indicating where any of the references teaches the following limitations: (1) a conductive agent characterized by the presence of agglomerated particles having a particle size of less than 10 μm and (2) a first binder A and a second binder B characterized by contact angle θ_A between the non-aqueous electrolyte and the first binder A and contact angle θ_B between the non-aqueous electrolyte and the second binder B, such that they satisfy the formula (1): $\theta_B - \theta_A \geq 15^o$. Thus, the Examiner has not established that any of these limitations are inherently disclosed by any of the references.

(Appeal Br. 8-9).

Where the PTO establishes a prima facie case of anticipation based on inherency, the burden shifts to Appellant to "prove that the subject matter shown to be in the prior art does not possess the characteristic relied on." *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971). Under the principles of inherency, if a prior art device in its normal and usual operation will necessarily functions in accordance with Applicant's claimed limitations, then the claim will be considered anticipated by the prior art. See, *In re King*, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986).

The Examiner found that Tomiyama exemplifies a positive electrode formed with PVDF and polyacrylonitrile, which are described in Applicant's specification as preferred binders A and B. (Answer 11 citing paragraph 70 of Tomiyama). The Examiner further found that Tomiyama's mixture of binders satisfies the equation $\theta_B - \theta_A \geq 15^o$ as Tomiyama exemplifies a composition having Applicant's preferred mixture of binders A and B. The Examiner has provided a sufficient evidentiary basis for concluding that Tomiyama's binders for forming a positive electrode inherently satisfies the equation $\theta_B - \theta_A \geq 15^o$.

The Examiner also found that Tomiyama's exemplified positive electrode employed carbon black in the same concentration as that claimed. (Answer 5). Indeed, Tomiyama exemplifies the use of carbon black (acetylene black) in combination with PVDF and polyacrylonitrile copolymers. (Tomiyama, ¶ 70). Tomiyama's carbon black is 0.1 μm, which

is the same as that described in Applicant's specification. (Compare, Tomiyama ¶¶ 35 and 62 with Applicant's Specification 12).

Applicant argues that Tomiyama fails to disclose necessary conditions to form an agglomerated conductive agent particle having a size of less than 10 microns as Tomiyama does not explicitly disclose the selection and use of two binders satisfying the equation $\theta_B - \theta_A \geq 15^o$. (Appeal Br. 9). The Examiner however, found that Tomiyama will inherently have the same agglomerated particle size since Tomiyama mixes the same conductive agent, binders, active material and solvent as described by Applicant. (Answer 12). Based upon the evidence presented, we find that the Examiner has provided a sufficient evidentiary basis for concluding that Tomiyama's positive electrode will inherently have the same agglomerated particle size for its carbon black conductive agent as that claimed by Applicant.

The Examiner has made out a case of anticipation under the principles of inherency. Applicant has failed to provide sufficient evidence to rebut the Examiner's findings on inherency. As such, we find that Applicant's claims 12-17 are anticipated by Tomiyama.

The Examiner has rejected claims 12-17 as obvious over Tomiyama to the extent that Tomiyama fails to inherently posses the claimed agglomerated particle size. (Answer 5). In particular, the Examiner found that one of ordinary skill in the art would have used agglomerated particles having a size of less than 10 microns to increase the homogeneousness of the mixture and the quality of the electrodes. (*Id.*). Applicant disagrees. (See, e.g., Reply Br. 2).

Applicant states that Tomiyama does not suggest how to control the size of the agglomerated conductive agent particles. (*Id*.). Applicant contends that:

> Only Appellants teach how to achieve a secondary battery comprising a conductive agent contained in the positive electrode material layer forming agglomerated particles having a particle size of less than 10 μm.

(*Id*.). Applicant cites its own specification, and in particular Example 1, as evidence that one skilled in the art would have been unable to control the particle size.

Applicant's specification states that Comparative Example 4 had larger agglomerated particles than Example 1. (Specification 37-38). Applicant's specification does not state that, absent the teachings of the specification, one of ordinary skill in the art lacked the skills necessary to control the agglomerated particle size.

We find that Applicant has failed to establish that one of ordinary skill in the art lacked the ability to control the agglomerated particle size. *Rohm & Haas Co. v. Brotech Corp*., 127 F.3d 1089, 1092, 44 USPQ2d 1459, 1462 (Fed. Cir. 1997)(Nothing in the rules or in jurisprudence requires trier of fact to credit unsupported or conclusory assertions). Additionally, we find that Applicant does not dispute the Examiner's finding that one of ordinary skill in the art would have had a reason to control the agglomerated particle size of the conductive agent. Based upon the evidence presented, we conclude that Applicant's claims 12-17 are obvious over Tomiyama.

2. The Rejection of Claims 12-17 under 35 U.S.C. § 103(a) as Obvious over Tomiyama in view of Cintra

Cintra describes a battery electrode. (Cintra, Abstract). The Examiner found that Cintra's electrode is formed by blending an electrode mixture comprising a binder and carbon black until all the agglomerated particles are less than 10 microns as measured using a Hegman gauge. (Answer 7, and Cintra ¶¶ 0029-33). The Examiner concluded that it would have been obvious to modify Tomiyama's electrode to achieve the particle size described by Cintra to create a more consistent mixture and improve the electrochemical performance of the cell. (Answer 7).

Applicant argues that Cintra describes a paste having a conductive agent with an agglomerated particle size of 10 μm. Applicant contends that, unlike Cintra, the size of the claimed agglomerated particles is measured after the paste has dried. (Appeal Br. 12-13). Applicant states that the size of Cintra's particles will increase upon drying the paste. (*Id.*). Applicant contends that the increase in size is a natural phenomenon and no further support is needed to prove Applicant's contention regarding the larger size. (Reply Br. 3). Applicant does state however, that its Specification 3, ll. 6 to 25 is consistent with its argument regarding the increase in size. (*Id.*).

Applicant's Specification 3, ll. 6 to 25 does not state that a drying step increases the agglomerated particle size. We do not credit Applicant's unsupported statements that the agglomerated particle size will necessarily increase upon drying. Additionally, even if the drying step had an effect upon the particle size, Applicant has failed to demonstrate that the resulting electrode lacks agglomerated conductive agent particles having a size of less than 10 μm. For the

reasons discussed above with respect to Tomiyama, and further in view of the teachings of Cintra, we conclude that Applicant's claims 12-17 are obvious over the prior art.

3. The Rejection of Claims 10 and 17 under 35 U.S.C. § 103(a) as Obvious over Tomiyama in view of Ward

Applicant claim 10 depends from claim 17 and further requires that the agglomerated particles have a bulk density of not less than 0.1 g/ml and not more than 0.5 g/ml. (Appeal Br. Claims Appendix, claim 10).

Ward describes air depolarized electrochemical cells. (Ward, Abstract). Ward teaches using carbon black catalyst having a density of 0.47 g/ml and the reduction of agglomerated particle size. (*Id*. at col. 16, ll. 1-20 and col. 17, ll. 40-50).

The Examiner states that Tomiyama is silent as to the bulk density of its agglomerated conductive agent particles. The Examiner finds that one skilled in the art would have modified Tomiyama to achieve the density described by Ward "to increase the reaction sites in the electrode material and create a completely homogeneous mixture." (Answer 7-8). Applicant disagrees.

Applicant contends that Ward and Tomiyama are directed to distinct batteries as Ward is directed to an air battery and Tomiyama is directed to a non-aqueous electrolyte secondary battery. (Reply Br. 4). In particular, Applicant states that air batteries are primary batteries and not rechargeable (secondary) batteries. Applicant contends that different reactions occur at the positive electrode of Ward and Tomiyama and thus the two references describe different electrochemical characteristics. (*Id*.).

One of ordinary skill in the battery art is not an automaton. *KSR* at 1742, 82 USPQ2d at 1397. One skilled in the battery art would understand that Ward identifies bulk density of conductive particles as a variable to be controlled when forming a positive electrode. Consistent with this teaching, the Examiner has identified a reason for one of ordinary skill in the art to control this variable, e.g., increase the reaction sites in the electrode material. We conclude that, as the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235-236 (1955). We hold claims 10 and 17 as obvious over the teachings of Tomiyama and Ward.

4. The Rejection of Claims 12-17 under 35 U.S.C. § 103(a) as Obvious over Ono in view of Cintra

Ono describes a non-aqueous electrolyte secondary battery having a mixture of binders. (Ono, Abstract). Ono teaches that its binder mixture is formed from polyimide binder and a fluorine polymer binder. (*Id.*). The particularly preferred fluorine binder is PVDF. (Id. col. 5, ll. 13-17).

The Examiner states that Ono's binders will inherently possess the required contact angles. The Examiner relies upon Cintra as teaching the use of agglomerated particles having a size of less than 10 μm.

As discussed above, Applicant's specification describes PVDF as a preferred binder "A." Applicant's specification however, does not identify whether polyimide is a suitable binder "B."

The Examiner does not state what the contact angle is for Ono's polyimide and non-aqueous electrolyte. We sympathize with the Examiner. We are not aware of a standardized textbook that provides a detailed listing of the contact angles for polyimide.

Applicant's brief does not state what the contact angle is for Ono's polyimide and non-aqueous electrolyte. Applicant's brief does not deny that Ono's polyimide possesses the requisite contact angle to achieve the claimed $\theta_B - \theta_A \geq 15^o$. Rather, Applicant's brief states that Ono fails to render obvious the selection of particular pairs of binders from among all possible binders on the basis of their contact angles. (Appeal Br. 15).

We need not, and do not, make any finding with respect to contact angle between Ono's polyimide and non-aqueous electrolyte. Specifically, in light of our decision that all of Applicant's appealed claims are unpatentable over Tomiyama, alone or in combination with the cited prior art, we conclude that the Examiner's rejection of the appealed claims over the teachings of Ono and Cintra is moot.

CONCLUSION

Upon consideration of the record and for the reasons given, it is:

Ordered that the Examiner's rejection of claims 12-17 under 35 U.S.C. § 102(b) as being anticipated by Tomiyama or in the alternative, obvious under 35 U.S.C. § 103(a) over Tomiyama is AFFIRMED.

Ordered that the Examiner's rejection of claims 12-17 under

35 U.S.C. § 103(a) as obvious over Tomiyama in view of Cintra is AFFIRMED.

Ordered that the Examiner's rejection of claims 10 and 17 under

35 U.S.C. § 103(a) as obvious over Tomiyama in view of Ward is AFFIRMED.

Ordered that the Examiner's rejection of claims 12-17 under

35 U.S.C. § 103(a) as obvious over Ono in view of Cintra is AFFIRMED.

Further Ordered that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. §1.136(a)(1)(iv)(2006).

AFFIRMED

smt

MCDERMOTT, WILL & EMERY
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096