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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* KENICHI YOSHIDA, YUHEI HORIKAWA,  
ATSUSHI SATO, and HISAYUKI ABE

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Appeal 2015-000271  
Application 13/162,198  
Technology Center 2800

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Before ROBERT E. NAPPI, MICHAEL J. STRAUSS, and  
JOHN D. HAMANN, *Administrative Patent Judges*.

STRAUSS, *Administrative Patent Judge*.

DECISION ON APPEAL

### STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–4, 8–10, and 14–16. Claims 5–7 and 11–13 are canceled. We have jurisdiction under 35 U.S.C. § 6(b). We heard oral arguments on November 17, 2016. A transcript of the hearing will be added to the record in due course.

We affirm.

### THE INVENTION

The claims are directed to a coating and electronic component. Claim 1, reproduced below, is representative of the claimed subject matter:

1. A coating provided on a conductor, comprising:
  - a first layer containing palladium, the first layer being deposited on and in direct contact with the conductor without any intervening layer, the conductor being made of copper, silver, or an alloy thereof; and
  - a second layer containing gold, the second layer being deposited on the first layer such that the first layer is between the conductor and the second layer,
    - wherein the first layer has a first region, and a second region arranged nearer to the second layer than the first region,
    - wherein the second region has a higher phosphorus concentration than the first region, and
    - wherein the phosphorus concentration in the first region is not more than 0.01 % by mass and the phosphorus concentration in the second region is more than 0.01% by mass and not more than 7% by mass.

### REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Tiziani	US 2003/0127701 A1	July 10, 2003
Ejiri	US 2010/0071940 A1	Mar. 25, 2010

Andoh            US 2010/0258954 A1            Oct. 14, 2010

### REJECTION

Claims 1–4, 8–10, and 14–16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andoh, Tiziani, and Ejiri. Ans. 5–9.<sup>1</sup>

### APPELLANTS' CONTENTIONS

1. One of ordinary skill would not have had a reasonable rationale to modify Andoh's structure having a nickel layer according to Tiziani's structure having no nickel layer because Andoh teaches a nickel layer is needed as a barrier to prevent contact between a metal circuit plate and a plated portion. App. Br. 8.
2. "[O]ne of ordinary skill would not have had a reasonable rationale to modify Andoh so that the percentage is no more [than the] 0.01 % disclosed in Ejiri, because such a modification is in direct contradiction with Andoh's requirement that this percentage should be at least 2.6%." App. Br. 9.
3. Ejiri's phosphorous percentage of no more than 0.01% "is associated with the fact that Ejiri requires a nickel layer" such that "one of ordinary skill would not have had any reasonable rationale to use such

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<sup>1</sup> Because independent claim 1 was amended after issuance of the Final Action of December 30, 2013 to incorporate the limitations of claim 5, for purposes of this appeal, we treat claim 1 and its dependent claims 2–4, 8–10, and 14–16 as all rejected on the basis set forth in Final Action in connection with claim 5, i.e., over the combination of Andoh, Tiziani, and Ejiri. *See* Advisory Action of March 12, 2014 entering the Amendment After Final Rejection Under 37 C.F.R. § 1.116 filed February 28, 2014.

percentage in Andoh's assertedly modified configuration [having no nickel layer]." *Id.*

#### ANALYSIS

We have reviewed the Examiner's rejection in light of Appellants' arguments the Examiner has erred. We disagree with Appellants' conclusions. We adopt as our own (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken (Final Act. 2–9 and Advisory Action of March 12, 2014) and (2) the reasons set forth by the Examiner in the Examiner's Answer in response to Appellants' Appeal Brief (Ans. 2–10) and concur with the conclusions reached by the Examiner. We highlight the following for emphasis.

In connection with contention 1 Appellants argue:

Andoh requires a nickel layer (Fig. 1; 241) between the asserted first layer (242) and conductor (22), such that the asserted first layer is not in direct contact with the asserted conductor (Fig. 1). The nickel layer is specifically required by Andoh to function as a barrier layer to prevent the contact between a metal circuit plate and a plated portion. See paragraph [0051] of Andoh. Also, the other parameters, such as the [phosphorus (P)] concentration, are specifically designed to prevent the diffusion of nickel from this nickel layer. See paragraph [0052] of Andoh. Thus, even if Tiziani disclosed a structure having no nickel layer, one of ordinary skill would not have had a reasonable rationale to combine such Tiziani teaching to remove Andoh's nickel layer, because doing so would be in direct contradiction to Andoh's teaching.

App. Br. 8. The Examiner responds by finding Tiziani discloses using either a nickel (and/or) a palladium film (i.e., in the alternative to one another) as a barrier between the plating film and conductor. Ans. 4 quoting Tiziani ¶¶ 18, 22, and 23. Therefore, the Examiner concludes the combination of Andoh

and Tiziani (the latter disclosing using only palladium as an alternative to nickel) would have been obvious to prevent unwanted compound formations using a thinner layer. Ans. 5.

We find Appellants' contention 1 unpersuasive of Examiner error. In particular, Appellants identify insufficient evidence to demonstrate Andoh's nickel layer is a requirement. Thus, Tiziani's disclosure of using either nickel or palladium layers in the alternative, when combined with Andoh's disclosed structure, teaches or suggests the omission of Andoh's nickel layer 241 in favor of palladium layer 242 such that the latter is in direct contact with underlying conductor layer 22 as required by the disputed limitation of claim 1. Furthermore, as explained by the Examiner, "omission of an element and its function in a combination where the remaining elements perform the same functions as before, involves only routine skill in the art." Ans. 5 citing *In re Karlson*, 136 USPQ 184 (1963). Appellants admit Andoh discloses Nickel layer 242 relieves mechanical stress and Palladium layer 242 forms a barrier layer to suppress diffusion of elements. Reply Br. 5–6. Thus, elimination of the Nickel layer merely eliminates the function of relieving mechanical stress while the remaining palladium layer suppresses diffusion and, as such, involves routine skill in the art as evidenced by Tiziani.

Alternatively, we note in passing and without reliance in formulating our decision, the same conclusion results when the combination of Andoh and Tiziani is viewed in a reverse ordering of the references.<sup>2</sup> In particular, Tiziani discloses third film 10 (gold) formed on second film 9 which, when

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<sup>2</sup> See *In re Bush*, 296 F.2d 491, 496 (CCPA 1961) (where a rejection is predicated on two references, each containing pertinent disclosure, the order of the references is of no significance, but merely a matter of exposition).

palladium<sup>3</sup>, provides for the omission of first film 8 (zinc) intermediate palladium film 9 and underlying copper layer 7. Tiziani ¶¶ 32–33. When zinc film 8 is omitted palladium film 9 “is applied directly on the layer 7 of copper.” Tiziani ¶ 34. In connection with the limitation “the second region has a higher phosphorous concentration than the first region,” Tiziani’s palladium film 9 may be modified to incorporate Andoh’s P-distributed layer 242 having a varying phosphorous concentration (*see* Andoh ¶ 52.) One skilled in the art would have made the modification to suppress diffusion of palladium toward the gold layer as disclosed by Andoh. Andoh ¶ 59. When viewed from this vantage, there is no intervening nickel layer to start with and, therefore, none that need be eliminated.

In connection with contention 2, Appellants argue Andoh specifically requires the percentage of phosphorus to be at least 2.6% and, as such, it would be improper to move the phosphorus concentration parameter out of the required range of concentrations by adopting the lower concentration limit of Ejiri. App. Br. 8–9. The Examiner responds by finding, rather than a requirement, Andoh’s lower concentration limit is merely a preference. Ans. 7. We agree with the Examiner. Appellants provide insufficient evidence Andoh’s lower concentration limit is either a rigid requirement or would have otherwise dissuaded one of skill in the art from, instead, using the lower concentration limit disclosed by Ejiri.

In connection with contention 3, Appellants argue Ejiri’s concentrations are only applicable to Ejiri’s configuration including a nickel layer but “is not necessarily suitable for a configuration having no nickel

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<sup>3</sup> The zinc layer is also unnecessary because, as in the present case, “[w]hen a pad layer 7 of copper . . . is used, the second film 8 of zinc can be omitted regardless of the nature of the metal film [9].” Tiziani ¶ 34.

layer” as in the configuration taught or suggested by the combination of Andoh and Tiziani asserted by the Examiner. App. Br. 8. The Examiner responds by finding “Appellant[s] ha[ve] not shown how the Ni layer of Ejiri affects the percentages of P in the claimed layers.” Ans. 9. Appellants reply, arguing “[the Examiner] bears the burden to show that Ejiri’s percentage for a configuration having a nickel layer is also suitable for a configuration without a nickel layer.” Reply Br. 8.

We disagree with Appellants. The Examiner has put forth a *prima facie* case of obviousness. In contrast, Appellants’ contention Ejiri’s percentages are only applicable to the specific configuration of layers taught by Ejiri and no others is mere attorney argument and speculation unsupported by factual evidence and is entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). Attorney argument is not evidence. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974). Nor can such argument take the place of evidence lacking in the record. *Meitzner v. Mindick*, 549 F.2d 775, 782 (CCPA 1977). Therefore, in the absence of sufficient persuasive evidence, we agree with the Examiner in concluding the combination of Andoh, Tiziani, and Ejiri would have been obvious to one skilled in the art at the time of the invention and such combination teaches or suggest the disputed limitations of claim 1.

For the reasons discussed *supra*, we are unpersuaded of Examiner error. Accordingly, we sustain the rejection of independent claim 1 and, for the same reasons, the rejection of dependent claims 2–4, 8–10, and 14–16, which were not argued separately.

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DECISION

We affirm the Examiner's decision to reject claims 1–4, 8–10, and 14–16.

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).

AFFIRMED