

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

Paper No. 32

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROJI TANI and TEPPEI KUBOTA

Appeal No. 2003-0196
Application No. 08/601,258

ON BRIEF

Before KIMLIN, WALTZ, and LIEBERMAN, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's final rejection of claims 1 through 17, which are the only claims pending in this application. We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a method for adjusting the temperature coefficient of resistance (TCR) of a temperature-measuring resistive element, which element includes an electrically insulating base and a platinum film formed by sintering an organic platinum compound (Brief, page 2). The TCR

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is adjusted by controlling either the temperature at which the platinum film is heat-treated after formation, the thickness of the platinum film, or the duration of the heat treatment (*id.*).

Appellants state that the claims on appeal stand or fall together (Brief, page 3). Since the examiner has selected claim 7 as representative of the grouped claims (Answer, page 3), we also select this claim from the grouped claims and decide the ground of rejection in this appeal on the basis of this claim alone. See 37 CFR § 1.192(c)(7)(2000). Of course, since claim 11 is the subject of a separate ground of rejection (Answer, page 4), we consider claim 11 in deciding this ground of rejection. See *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002). Representative claim 7 is reproduced below:

7. A method of adjusting a temperature coefficient of resistance of a temperature-measuring resistive element having an electrically insulating base and a noble metal film formed on the base, the method comprising the steps of:

forming a noble metal film by sintering a noble metal compound located on an electrically insulating base; and

controlling at least one of a thickness of the noble metal film, a temperature at which the noble metal film is heat-treated and the length of time that the noble metal film is heat-treated after formation of the noble metal film on the electrically insulating base so as to adjust the temperature coefficient of resistance of the noble metal film.

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The examiner relies upon the following references as evidence of obviousness:

Uriu et al. (Uriu)	5,022,263	Jun. 11, 1991
Gruner (published German Patent specification)	2908919	Aug. 27, 1981
Wienand et al. (Wienand) (published German Patent specification) ¹	4300084	Jul. 07, 1994

The claims on appeal stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wienand and Uriu (Answer, page 2). Claim 11 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wienand and Uriu further in view of Gruner (Answer, page 4). We *affirm* all of the examiner's rejections on appeal essentially for the reasons stated in the Answer and those reasons set forth below.

OPINION

A. The Rejection over Wienand and Uriu

The examiner finds that Wienand discloses a method of adjusting a TCR of a resistance thermometer (i.e., a temperature-measuring resistive element) having an electrically insulating base and a platinum film formed on the base, where the method includes the steps of forming the platinum film on an electrically

¹We rely upon and cite from English translations of both the Gruner and Wienand documents, previously made of record.

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insulating base, and controlling the temperature and duration at which the platinum film is heat-treated after formation of the film so as to adjust the TCR of the platinum film to the desired TCR of 3850 ppm/K (Answer, page 3).

The examiner recognizes that Wienand teaches that the platinum film may be deposited by physical evaporation or sputtering and thus differs from the claimed method by not requiring that the platinum film be deposited by applying and sintering a platinum metal compound (*id.*). Accordingly, the examiner applies *Uriu* for the teaching of a method of making a temperature-measuring resistive element having an electrically insulating base and a platinum film formed on the base with a specified TCR, where the platinum film is formed by sintering a metalloorganic platinum paste located on the base (Answer, page 4). From these findings, the examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the platinum film of Wienand by applying and sintering an organic platinum compound instead of evaporating or sputtering with the expectation of similar results (*id.*). We agree.

Appellants agree with the factual findings set forth by the examiner but argue that there is no suggestion or desirability shown in the references to support the proposed combination of

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references (Brief, page 4). Appellants argue that there would be no reasonable expectation of success since Wienand teaches formation of a platinum film with a desired TCR of 3850 ppm/K while one using the process of Uriu would only expect to achieve the TCR taught by Uriu, i.e., about 3700 ppm/K. Accordingly, appellants submit that Uriu actually "teaches away" from making the proposed combination of references (*id.*).

Appellants' arguments are not persuasive. As correctly argued by the examiner on page 6 of the Answer, the temperature-measuring resistive elements and the methods of preparation disclosed by Wienand and Uriu are the same or so similar that one of ordinary skill in the art would have expected that the platinum film of Wienand would have reasonably been expected to be deposited by the method of Uriu, i.e., by applying and sintering an organoplatinum compound. Additionally, we note that Uriu specifically teaches the equivalence of a plating method (which would include both evaporation and sputtering) and baking the coated and printed metalloorganic platinum paste to form the desired temperature detecting resistor film (see col. 2, ll. 46-51, and col. 8, ll. 7-10). As correctly noted by the examiner, "[a]n express suggestion to substitute one equivalent process for another is not necessary

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to render such substitution obvious." See *In re Fout*, 675 F.2d 297, 301, 213 USPQ 532, 536 (CCPA 1982).

We determine that the Uriu reference does not "teach away" from the proposed combination for the reasons set forth by the examiner (Answer, page 6), namely it appears that the method of depositing the platinum film does not affect the TCR but the post-film formation heat treatment does adjust (raise) the TCR (see Wienand, page 7, first full paragraph). Appellants have not submitted any evidence to establish the criticality of the method of forming the platinum film. The low TCR taught By Uriu is the result of the lack of any heat treatment after the platinum film has been deposited (*id.*).

Appellants argue that the examiner admits that Uriu does not disclose a post-deposition annealing step and one of ordinary skill in the art would have no motivation to substitute the deposition process of Uriu for the evaporated/sputtered process used in Wienand (Brief, page 5). This argument is not persuasive for reasons stated above, namely that even though Uriu does not disclose a post-deposition heat treatment, this reference teaches the relative equivalency of plating and sintering methods for depositing a platinum film in a temperature-measuring resistive element. Wienand does teach a post-deposition heat treatment

(annealing) of the platinum film to adjust/raise the TCR of the element. Thus one of ordinary skill in this art, in view of the applied combination of references, would have expected a high TCR as taught by Wienand when using a post-deposition heat treatment.

B. The Rejection over Wienand, Uriu and Gruner

Appellants merely contest the rejection of claim 11 over the above listed references by stating that Gruner "does not cure any of the deficiencies" of the combination of Wienand and Uriu for the same reasons as stated above (Brief, page 5). Accordingly, we adopt our remarks from above. Additionally, we note that the examiner finds that Gruner demonstrates the relationship between the layer thickness and the TCR for nickel films, and also teaches that this relationship is valid for platinum films (Answer, page 5, citing the Figure of Gruner and pages 3-4).

C. Conclusion

For the foregoing reasons and those stated in the Answer, we determine that the examiner has established a *prima facie* case of obviousness in view of the reference evidence. Based on the totality of the record, including due consideration of appellants' arguments, we determine that the preponderance of the evidence weighs most heavily in favor of obviousness within the meaning of

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section 103(a). Accordingly, we affirm both of the examiner's rejections on appeal.

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

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
THOMAS A. WALTZ)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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