UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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INGERSOLL CUTTING TOOL COMPANY
Requester and Appellant and Cross-Respondent

v.

TDY INDUSTRIES
Patent Owner and Respondent and Cross-Appellant

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Appeal 2013-001102
Reexamination Control 95/001,417
Patent 7,244,519
Technology Center 3900

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Before HUBERT C. LORIN, LORA M. GREEN, and RICHARD M. LEBOVITZ, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON REHEARING

In the Decision on Appeal dated May 6, 2013 ("Dec."), we reversed the Examiner's determination not to adopt the rejection of claims 1-4, 9-18, 23, 24, 27-31, 35, 36, 45, 46, 49, 50, 58, 83, 85, and 89 as anticipated by Grab.[1] A decision to reverse the Examiner's determination not to adopt a rejection is a new ground of

[1] George P. Grab et al., US 6,554,548 B1 (issued Apr. 29, 2003).

rejection. 37 C.F.R. § 41.77(b). Consequently, a new ground of rejection of claims 1-4, 9-18, 23, 24, 27-31, 35, 36, 45, 46, 49, 50, 58, 83, 85, and 89 was made under 35 U.S.C. § 102(b) as anticipated by Grab. Patent Owner requests rehearing of this decision under 37 C.F.R. § 41.79 (Request for Rehearing ("Req. Reh'g") dated June 5, 2013).

Patent Owner contends the Board misapprehended or overlooked two points. First, Patent Owner contends that the Board overlooked and misapprehended that Grab fails to provide evidence of prior invention (Req. Reh'g 3). Second, Patent Owner contends that the Board overlooked that Grab does not enable the production of ruthenium-containing substrates having a PVD coating (*id.*).

1. Does Grab not provide evidence of prior invention?

Claim 1 of the '519 patent comprises the following elements:

(1) "A cutting tool, comprising:"

(2) "a cemented carbide substrate, wherein the substrate comprises"

(3) "hard particles" and

(4) "a binder,"

(5) "the binder comprises ruthenium" and

(6) "at least one physical vapor deposition [PVD] coating on a least a portion of the substrate."

In the Decision, we found Grab's claim 5 describes elements (1) through (5) of claim 1 of the '519 patent, and explained the correspondence between Grab's claim 5 and the '519 patent (Decision 6-7). Grab's claim 5, and claim 1 upon which it depends, are reproduced below:

> 1. A coated cutting insert comprising:
>
> a rake face and a flank face, a cutting edge at the juncture of the rake face and the flank face;
>
> the cutting insert having a hard refractory coating and a substrate wherein the coating is adherently bonded to the substrate;
>
> the substrate comprising a tungsten carbide-based material comprising a bulk composition of at least about 70 weight percent tungsten and carbon, between about 3 weight percent and about 12 weight percent cobalt, and at least 0.09 weight percent chromium;
>
> the cobalt and the chromium forming a binder alloy . . .
>
> 5. The coated cutting insert of claim 1 wherein the binder alloy further includes one or more of tungsten, iron, nickel, ruthenium, and rhenium.

With respect, to element (5), we found that ruthenium is one of five metals named in Grab's claim 5, and claim 5 specifically requires "one or more" of the five (Decision 7). With respect to element (6), we found that Grab's claim 5 comprises a "cutting insert having a hard refractory coating," but we acknowledged that claim 5 does not specifically recite that the coating is "physical vapor deposition coating." (*Id.*) However, we found that Grab discloses only three different ways of applying the coating to the cutting insert, one of which is physical vapor deposition (PVD) (*id.*). "While CVD and MTCVD are characterized by Grab as preferred ways of applying the coating, there are only three different coating methods described by Grab and the choice of one of those three is a necessary choice to have made the coating of Grab's claim 5." (*Id.*). We concluded:

> If one binder metal (element [5] of claim 1) of the five were selected one at a time, and coated (element [6] of claim 1) by either of the three coating methods specifically identified by Grab (FF5), there are about 15 different embodiments – a "definite and limited" class, each

> of which would be immediately "envisage[d]" by one of ordinary skill in the art upon reading claim 5 of Grab. [*In re Petering*, 301 F.2d 676,681 (CCPA 1962).]

(*Id.*)

Quoting from the following passage reproduced below, Patent Owner contends that "Grab discloses the mere *contemplation* that PVD *may* work as an alternative to the extensively described CVD and MTCVD" (Req. Reh'g 6):

> Generally speaking, one or more of the coating layers of the coating schemes are applied by chemical vapor deposition (CVD) and moderate temperature chemical vapor deposition (MTCVD). However, applicants also contemplate that one or more layers of a coating scheme may be applied by physical vapor deposition (PVD).

(Grab, col. 4, ll. 56-61.)

Patent Owner contends:

> The fact that the inventors in Grab merely contemplated that PVD might work as a potential alternative to the CVD and/or MTCVD coating techniques that were actually demonstrated does not prove *prior invention* of a cutting tool comprising a ruthenium-containing substrate and a PVD coating or a method comprising applying a PVD coating to a ruthenium-containing substrate. *Net MoneyIN*, 545 F.3d at 1369 ("the hallmark of anticipation is prior invention").

(Req. Reh'g 6.) Patent Owner argues that PVD coatings were "a mere *contemplation*," were "merely being potential, yet untried," and therefore were not "an actually invented embodiment that proves prior invention." (*Id.* at 8.)

It is true that Grab does not appear to have utilized PVD coatings in its working examples. Rather, Grab stated that PVD coatings were "contemplate[d]," i.e., "To have in mind as an intention or possibility."[2] However, we do not find any requirement in 35 U.S.C. § 102 that an embodiment be actually made for a

[2] http://www.thefreedictionary.com/contemplate (accessed October 21, 2013).

disclosure to be anticipatory. Indeed, the Federal Circuit has repeatedly emphasized that "anticipation does not require actual performance of suggestions in a disclosure. Rather, anticipation only requires that those suggestions be enabled to one of skill in the art." *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1379 (Fed. Cir. 2001) (as quoted in *Novo Nordisk Pharmaceuticals Inc. v. Bio-Technology General Corp.*, 424 F. 3d 1347,1355 (Fed. Cir. 2005). Consequently, we do not find it persuasive that we erred in relying on the disclosure of PVD coatings in Grab in our conclusion that Grab anticipated the claimed invention of the '519 patent.

2. Does Grad enable the claimed invention?

"In order to anticipate, a prior art disclosure must also be enabling, such that one of ordinary skill in the art could practice the invention without undue experimentation." *Novo Nordisk*, 424 F.3d at 1355; see also *Impax Laboratories Inc. v. Aventis Pharmaceuticals Inc.*, 545 F. 3d 1312, 1314 (Fed. Cir. 2008). Citing to a declaration by Craig Morton, Ph.D., Patent Owner states:

> Grab patent does not recognize or appreciate, let alone address, the cobalt capping problems that would prevent the successful application of PVD coatings to ruthenium-featured substrates. Therefore, the Grab patent does not provide enough information to enable one to successfully apply PVD coatings on ruthenium-featured substrates.

(Req. Reh'g 11, quoting from First Morton Declaration at ¶15). Patent Owner cited evidence of "the exacerbated/enhanced binder capping problem due to ruthenium addition, which frustrated the effective application of PVD coatings to sintered cemented carbide substrates comprising ruthenium-containing substrates prior to the present invention." (Req. Reh'g 12.)

Patent Owner asserts to have "discovered how to successfully combine PVD coatings with cemented carbide cutting tool substrates having a ruthenium-containing binder phase." (Req. Reh'g 11.) For example in the Third Morton Declaration, Dr. Morton stated that "without using special processing conditions, blasting the surfaces of sintered cemented carbide materials having cobalt-ruthenium binder capping will not remove or reduce the capping and provide a surface suitable for effective PVD coating or will leave the underlying surface otherwise unsuitable for PVD coating." (Third Morton Decl. ¶ 8.)

Although Grab does not expressly describe a capping problem due to ruthenium addition, Grab does describe grinding substrates prior to coating (Grab, col. 7, ll. 32-34). Indeed, pretreating surfaces prior to PVD coating was known in the art prior to the filing date of the '519 patent. Biernat,[3] which was cited by Requester in this proceeding, expressly states:

> However, even the quality of a PVD coating can't be ensured unless the surface to be coated lends proper support. Just as one would not paint over oxidized, dirty, or corroded surfaces, one should not coat over tool surfaces that are contaminated or unstable.
>
> Sometimes, a layer up to 15μm thick of excess cobalt will cover a sintered tool's surface. This mottled, cobalt-rich skin is known as cobalt capping. . . . But when a capped surface is coated, the soft capping may deform and yield, causing the coating to stretch or crack or otherwise breakdown prematurely. To avoid these problems the excess cobalt must be removed by grinding or polishing before the tool is coated.

(Biernat, p. 1 in section titled "Surface Quality."). Consistently, Grab describes grinding the surface of the substrate prior to applying a coating to the substrate, albeit not a PVD coating. In view of Grab's explicit disclosure, as well as

[3] Stanley Biernat, Jr., *Coatings Can Greatly Enhance Carbide Tool Life, but only if they Stay in Place*, Cutting Tool Engineering, v. 47, n. 2 (1995).

Biernat's, which would be imputed to one of ordinary skill in the art, we conclude that one of ordinary skill in the art would have routinely ground the surface of the substrate prior to applying any coating, including a PVD coating. Specifically, it appears that Grab teaches the same type of surface treatment said by Patent Owner to mitigate cobalt capping and enable its claimed invention. Consequently, we do not find it persuasive that Grab does not enable the subject matter of claim 1.

REHEARING DENIED

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