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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte DAVID P. STRAUSS, THOMAS J. HUNT,
and PAUL S. GILMAN

_____

Appeal No. 2001-1776
Application No. 08/881,948

_____

ON BRIEF

_____

Before GARRIS, WALTZ, and MOORE, Administrative Patent Judges.

WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 9 through 13, 23 and 24, which are the only claims remaining in this application. We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a one-piece target, i.e., a single homogenous piece of sputtering material, with threaded holes proximate to its periphery so that the target may be bolted to the interior of the chamber with

bolts passing into the target (Brief, paragraph bridging pages 3-4). Appellants state that the claims stand or fall together (Brief, page 4). Accordingly, pursuant to the provisions of 37 CFR § 1.192(c)(7)(1997), we select claims 9 and 10 from the groupings of claims and decide the grounds of rejection in this appeal on the basis of these claims alone, to the extent these claims have been separately argued by appellants.[1] Illustrative independent claim 9 is reproduced below:

> 9. A target for installation in a vacuum chamber for processing a substrate by causing sputtering material to be ejected from the target onto said substrate, comprising
>
> a disk-shaped section having two planar surfaces and an outer periphery, said disk-shaped section having at least one radially-inward step proximate said outer periphery,
>
> said target being manufactured homogeneously of said sputtering material,
>
> said disk-shaped section defining threaded holes proximate said outer periphery of said disk-shaped section.

The examiner has relied upon the following references as evidence of obviousness:

Zejda	5,112,467	May 12, 1992
Inoue	5,244,556	Sep. 14, 1993

[1]Claim 24 is the sole claim in the third rejection on appeal (Answer, page 6) and therefore we consider claim 24, to the extent it is separately argued by appellants, in deciding this ground of rejection. *See In re McDaniel,* 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002).

Inoue (hereafter "Fujitsu") 59-179784 Oct. 12, 1984
(published Japanese Unexamined Patent Application)[2]

Wegmann et al. (Wegmann) 2 173 217A Oct. 08, 1986
(published UK Patent Application)

Claims 9 and 23 stand rejected under 35 U.S.C. § 103 as unpatentable over Fujitsu in view of Zejda (Answer, page 3). Claims 10-13 stand rejected under 35 U.S.C. § 103 as unpatentable over Fujitsu in view of Zejda further in view of Inoue (Answer, page 5). Claim 24 stands rejected under 35 U.S.C. § 103 as unpatentable over Fujitsu in view of Zejda further in view of Wegmann (Answer, page 6). We *affirm* all of the rejections on appeal essentially for the reasons of record in the Answer and those set forth below.

OPINION

The examiner finds that Fujitsu discloses a target having a generally disk-shaped surface with two planar surfaces and a cylindrical outer periphery, where the target has at least one radially-inward step proximate the outer periphery, is manufactured from a single material, and has holes provided in proximity to the outer periphery to allow screws to attach the target to the backing plate (Answer, page 3, citing Figure 2).

[2]We rely upon and cite from a full English translation of this document, now made of record as translation no. 2002-1295 (copy attached to this decision).

The examiner thus finds that the only difference between the Fujitsu disclosure and the claimed subject matter is that the reference is silent with regard to the threaded holes required by claim 9 on appeal (*id.*). To remedy this deficiency, the examiner applies Zejda for the teaching of a cathode sputtering device with a quick disconnect mechanism for rapid replacement of the target where the target and base plate are secured together by means of screw bolts 14, with threaded holes provided for the threaded screw to secure the target to the holder or base plate (Answer, page 4, citing Figure 1 and column 2, ll. 59-65 and 66-68). From these findings, the examiner concludes that it would have been obvious to one of ordinary skill in this art to have provided threaded holes in the target so that screws can secure the target to the holder and enable rapid replacement of the target (*id.*). We agree.

Appellants agree with the examiner that the difference between the Fujitsu disclosure and the claimed subject matter is that the holes in the target of Fujitsu are not threaded whereas the present claims recite threaded holes in the target (Brief, paragraph bridging pages 4-5). However, appellants argue that the holes 14 which pass through the target 11 of Fujitsu are not threaded because threads are unnecessary, with mechanical

engagement of the bolt with the target obtained by the interaction of the head of the bolt with the countersunk hole (Brief, page 5).

Appellants' argument is not persuasive. We agree with appellants that the holes in the target of Fujitsu are not threaded because threads are unnecessary, but for different reasons than stated by appellants. The screw 14 of Fujitsu goes through the holes in the target 11 and is anchored in the backing plate 12 (see Figure 2). No threads are necessary in the holes through the target 11 of Fujitsu since threads in the backing plate would anchor the screw 14 and allow it to achieve its function of securing the target to the water-cooling backing plate (translation, page 4).[3] However, considering the teachings of the prior art *as a whole*, we agree with the examiner that it would have been obvious to one of ordinary skill in this art to have provided threaded holes in the target of Fujitsu to secure the base plate to the target with screw bolts for easy and rapid replacement as taught by Zejda. *See In re Keller,* 642 F.2d 413,

[3]We note some minor errors in the translation, e.g., "the water-cooling packing plate" (page 4, ll. 6-7 and 17), and "the water-cooling packing blade" (page 4, l. 15)(underlining added). We believe it is clear that "12" in Figure 2 should be a water-cooling backing plate. See the abstract accompanying the original document.

425, 208 USPQ 871, 881 (CCPA 1981). In other words, when securing the target base plate to the target with screw bolts to provide for a quick disconnect mechanism for rapid replacement of the target in Fujitsu, as taught by Zejda, it would have been obvious to one of ordinary skill in this art to provide threads in the anchoring target.

Appellants argue that the worker of average skill would appreciate that the holes 14 passing through the Fujitsu target 11 should not be threaded as doing so would make it much more difficult to achieve tight mechanical engagement (Brief, paragraph bridging pages 5-6). This argument is not well taken since appellants have not cited any evidence or convincing reasoning to support their argument. Appellants admit that the examiner's position that "providing threaded holes can still achieve a tight mechanical fit if screwed properly" may be true (Brief, paragraph bridging pages 6-7). Accordingly, we consider this argument "mere attorney argument" which cannot take the place of evidence or convincing reasoning. *See In re Scarborough,* 500 F.2d 560, 566, 182 USPQ 298, 302 (CCPA 1974).

Appellants argue that Zejda is directed to an application that is totally different and in many ways incompatible with

Fujitsu (Brief, page 7). Appellants also argue that they cannot see any reason that these devices would be combined (Brief, page 8).

These arguments are not persuasive. Fujitsu and Zejda are both directed to coating devices with the same problem and solution therefore. Fujitsu is directed to a sputtering device for forming a thin film on a substrate (page 1). Fujitsu teaches that the prior art adhesively bonds the target to the backing plate with its attendant problems (pages 2-3). Fujitsu solves this problem by presenting a sputtering device that has a target screwing mechanism without using a bonding agent (paragraph bridging pages 3-4). Fujitsu discloses that replacing the target after use is not easy, leading to a time-consuming task of releasing the bonding and re-bonding the target, but the "screwing mechanism of the present invention is easy and can be efficiently maintained." Page 5, ll. 11-14.

Zejda discloses that in a coating apparatus it is necessary to replace the targets, which replacement is complicated, time consuming and expensive (col. 1, ll. 39-44). To solve this problem, Zejda provides a quick disconnect coupling for securing targets to enable simple and fast mounting/dismounting of targets (col. 1, ll. 50-54). As part of this rapid replacement, Zejda

teaches that the "target **1** and base plate **2** are secured together by means of screw bolts **14**." Col. 2, ll. 66-67; see also Figure 1. As admitted by appellants, Zejda brings the screw bolts into the target from the backing plate (rear) side (Brief, page 8). Accordingly, we determine that it would have been well within the ordinary skill in this art to bring the screw bolts into the target from the backing plate side in the sputtering target device of Fujitsu (with the threaded holes in the target), as taught by Zejda, for a rapid and simple replacement system.[4]

Appellants argue that Fujitsu inserts the target mounting bolts from the sputtering (inner) side of the target and would not arrange the bolts as taught by Zejda since the magnets and accompanying mechanism "will crowd the rear side of the target/backing plate assembly" rendering the bolts less accessible (Brief, page 7). Again we note that this argument is "mere attorney argument" unsupported by any evidence of record or convincing reasoning. *See In re Scarborough, supra.*

Appellants' only argument with respect to Inoue is that this reference teaches away from a single material target (Brief, page 9). This argument is not well taken for several reasons. First,

[4]We note that the screw bolts of Zejda need only be partially removed to allow replacement of the target.

the examiner correctly notes that Fujitsu discloses a target manufactured from a single material (Answer, page 3). Second, as also noted by the examiner (Answer, page 5), Inoue teaches that the target can be any *one* of a list of metals (col. 7, l. 62-col. 8, l. 5; see also col. 6, ll. 58-63). Finally, appellants have not cited any part of Inoue that supports their argument that this reference teaches away from the use of a single material sputtering target (see col. 4, ll. 36-37, where the target plate 1a is aluminum, a single material; and col. 5, ll. 9-17, where the device of Figure 3 produces a higher quality thin film due to the removal of residual gases, not from the particular target material).

Appellants argue that Wegmann does not show the concepts absent from the references previously discussed (Brief, page 9). Accordingly, we adopt the examiner's factual findings and conclusions of law regarding Wegmann, in combination with Fujitsu and Zejda, for the reasons set forth in the Answer and as discussed above.

For the foregoing reasons and those set forth 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 as discussed above, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of 35 U.S.C. § 103. Accordingly, we affirm all 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

Bradley R. Garris Administrative Patent Judge	)	
Thomas A. Waltz Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
James T. Moore Administrative Patent Judge	)	

TAW/tdl

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