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THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

**MAILED**

**APR 26 1996**

**PAT & TM OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Ex parte JAMES E. JASKIE

Appeal No. 95-3093  
Application # 08/011,595<sup>1</sup>

ON BRIEF

Before THOMAS, HAIRSTON, and BARRETT, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

ON REQUEST FOR RECONSIDERATION

Appellant requests reconsideration of that portion of our decision entered February 9, 1996 (Paper No. 13), in which we sustained the rejection of claims 1-3 and 6-9 as unpatentable under 35 U.S.C. § 103 over Jaskie.

<sup>1</sup> Application for patent filed February 1, 1993, entitled "Enhanced Electron Emitter."

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Our decision found that the diamond coating crystallite in Jaskie inherently contains "electrically active defects" because "[a]ll real crystal have defects in the arrangements of atoms, including line defects or dislocations" (Decision, page 6) which defects are "of the type disclosed in the specification" (Decision, page 7) as having electrically active properties (specification, pages 5-6). "[I]t is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art." In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977) (quoting from In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)). Appellant argues that the inherency rejection is a new ground of rejection (Request, page 3). However, since appellant does not ask that the rejection be denominated a new ground to permit further prosecution, but responds on the merits, it is unnecessary to address the new argument issue.

#### Background

The claims are directed to simply a material having a structure with a certain electrical property, an "electrically active defect." There is no claimed significant amount of "electrically active defects" in the material; claims 1 and 7 recite "an electrically active defect," which is satisfied by one defect, and claims 3 and 9 call for "a plurality of defects,"

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which is satisfied by two defects. There is no claimed circuit or actual use of the device made of the material. In situations where the claims are this broad, it is natural to question whether the structure and property are inherent.

The specification discusses that "[t]here are several types of crystal defects that can occur in diamond and which will produce the useful properties of the present invention" (specification, page 5) and discusses three types of simple dislocations which are useful as "electrically active defects" (specification, page 6). This suggests that the defects are naturally occurring and that the defects inherently have the electrically active property. The specification enumerates "several types of dislocations that can be effective in producing dislocations" (specification, page 11), among which "[t]hermally induced stresses during growth and 'mistakes' during the growth process are the two leading causes of dislocations in the diamond material that are used to produce the desired defects" (specification, pages 11-12). This seems to be a list of general factors known to produce defects and further suggests that at least some "electrically active defects" are naturally occurring (especially given that defects are caused by "mistakes"). The lack of specific description in the specification of how to manufacture defects or how to make defects that are electrically

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active as opposed to non-active defects implies that defects are inherently present and are inherently electrically active.

Several references were also cited as evidence that defects are inherent in crystal structures and that defects are known to have electrical properties. In our opinion, a reasonable case exists that the claimed defect structure and property are inherent in diamond coating crystallite such as Jaskie (remembering that the claims require one, or at most two, defects). The burden of going forward with the evidence shifts to appellant to demonstrate that "electrically active defects" are not inherent in the diamond coating crystallite of Jaskie. See Best, 562 F.2d at 1254-55, 195 USPQ at 433.

Appellant's arguments

Initially, we point out that what we are looking for in appellant's argument is an explanation why crystal dislocations are not inherent and/or why inherent crystal dislocations are not "electrically active." Because inherency is not based on express disclosure, but on the existence or not of a function or characteristic, arguments about lack of express disclosure in the references are not persuasive.

Appellant's arguments do not support the assertion that "The Claims Do Not Read on Inherent Defects (Request, page 3, title). "Appellant agrees that crystals can have defects in them" (Request, page 3), but appellant apparently is unwilling to make

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a positive statement that inherently present defects are (or are not) dislocations of the type disclosed in the application. The rejection is based on inherency of the defects and inherency of the electron emission property; remember that the claims call only for a material having one or two of these defects and the "electrically active" property. Therefore, appellant's arguments that "nothing in Nabarro supports the conclusion that inherent defects in crystals will operate as enhanced electron emitters" (Request, page 3) and "[n]othing in this [Bruley and Batson] article would in any way give rise to the assumption that all diamond materials have the type of electrically active defects claimed in the subject application" (Request, pages 4) are nonpersuasive because inherency does not require express teachings. While we think Nabarro does suggest that dislocations are electrically active, and fail to see how Bruley's and Batson's statement that a study of a type IIb diamond "showed its dislocations to be electrically active" (page 255) could be any more positive, express teachings are not required. Appellant does not explain why inherently-occurring defects are not dislocations of the type disclosed in the application to provide enhanced electron emission. The burden of showing lack of inherency is on appellant and such a showing is manifestly not met by arguing that the property is not expressly mentioned in the references.

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Appellant argues that our deduction that Jaskie would inherently contain the kind of defects disclosed in the specification, because Jaskie utilizes carbon nucleation sites to grow diamond crystallites and because appellant's specification discloses that defects arise from "mistakes" due to growth from nucleation sites, is not supported. "Only if great care is taken to get the orientation of the seeds of adjacent crystallites 'sufficiently similar, but not identical, the growing lattices meet and join with a resultant screw dislocation'" (Request, page 5). It is not known where appellant gets the requirement that great care must be taken, but we fail to see any support in the specification. Furthermore, given the large number of nucleation sites in Jaskie it is reasonable to assume that one or two defects are created, which is all that the claims require. We note that Jaskie is appellant's own patent and, thus, we are hardly persuaded by arguments about what Jaskie fails to expressly suggest. Appellant should be able to tell us whether or not, and why or why not, Jaskie inherently contains electrically active defects.

Appellant argues that "[i]n order to comply with the claims as required in a 35 U.S.C. § 102 rejection, either the inherently periodic defects must be situated at emission sites (generally the tip of a Spindt tip) or the inherently periodic defects must each define electron emitters" (Request, page 6). Appellant goes

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on to discuss how, if the Spindt tip of Jaskie includes periodic electrically active defects, such a structure would result in destruction of the device and, therefore, would produce an inoperative device (Request, pages 7-8). We think that appellant is not addressing the actual limitations of the claims, which are directed simply (and very broadly) to a material having a certain property, and is not addressing the inherency rejection, which is that the diamond coating crystallite in Jaskie inherently has those limitations. The dislocations themselves define an electron emitter as shown in appellant's figure 6 and it is the dislocations that are considered the emission sites, not the Spindt tip in Jaskie. The issue is the inherent existence of defects of the type that cause electron emission in the diamond layer of Jaskie, not the operation of the device.

As to dependent claims 3 and 9, these claims require a "plurality" of defects, which means two or more, "periodically positioned." Appellant has not answered our inherency reasoning as to one defect and does not convince us that a plurality of periodically defects is also not inherent. As to the lack of disclosure of how to produce a plurality of periodically spaced defects, appellant argues that "producing periodic defects simply requires repeating the single defect process a number of times" (Request, pages 9-10). The point is that by failing to describe in the specification how to make periodically positioned

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defects, it is reasonable to infer that inherently-occurring defects will satisfy this limitation. Appellant's argument fails to persuade us that periodic defects (especially when only two defects are required by the claims) are not inherent in Jaskie.

Appellant argues (Request, page 7):

As to the specific mention of claim 6, appellant has specifically included information in the specification as to what types of defects produce the claimed structures and specific data as to the operation of the defects. Appellant believes that, for example, orienting adjacent crystals as to growth planes to produce a defect which is situated as claimed in claim 6 is sufficiently described for one skilled in the art to be able to construct such devices.

It would have been helpful if appellant pointed to where in the specification he discusses "orienting adjacent crystals as to growth planes to produce a defect which is situated [at 45° to 90°]," because we find no such disclosure. In any case, however, the disclosure of 60° dislocations (specification, pages 5-6), if 60° means 60° to the surface, implies that such dislocations are inherently-occurring structures. The point is that by failing to specifically describe how to make a defect positioned at an angle of 45° to 90° to the surface, it is reasonable to infer that inherently-occurring defects will satisfy this limitation. Appellant has not rebutted this inference.

#### CONCLUSION

Appellant's arguments provide no explanation why crystal dislocations of the three types disclosed in the specification



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