

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte RAHIM HANI AND CYNTHIA M. WARD

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Appeal No. 94-3726  
Application 07/978,531<sup>1</sup>

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ON BRIEF

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Before WILLIAM F. SMITH, GARRIS and WALTZ, Administrative Patent Judges.,  
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claim 1 through 11, which are the only claims in this application.

According to appellants, the invention is directed to a multi-step process for preparing a storage stable dispersion

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<sup>1</sup> Application for patent filed November 19, 1992.

of a

solid biocide (brief, page 2). Claims 1 and 11 are illustrative of the subject matter on appeal and are reproduced below:

1. A process for preparing a storage stable dispersion of a solid biocide which comprises the steps of:

(a) forming a biocide/carrier concentrate containing 1 to 70 percent biocide by mixing a solid biocide and a liquid carrier until a desired particle size for said biocide is obtained;

(b) heating said mixture of biocide concentrate and a heat swellable polymer to an elevated temperature of between about 50EC and about 120EC to cause said polymer to swell by carrier absorption into said polymer, thereby providing a swelled polymer plus biocide mixture in said carrier characterized by an increased viscosity sufficient to provide a hot dispersion; and

(c) cooling said hot dispersion under continuous stirring to a temperature of between about -20EC and about 40EC to provide a storage-stable dispersion having a viscosity of between about 2,000 and about 30,000 centipoise.

11. The storage-stable composition produced by the process of claim 1.

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

Tirpak et al. (Tirpak) 1975	3,911,135	Oct. 7,
Rei et al. (Rei '080)	4,683,080	Jul. 28,

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1987 Rei et al. (Rei '657)	5,102,657	Apr. 7,
1992 Yeager	835,936	Mar. 3,
1970 (Canadian Patent)		

Appellants cite and rely upon the following  
reference in their brief:

*Webster's Ninth New Collegiate Dictionary*, pp. 365 and 1123  
(Merriam-Webster Inc., Springfield, Mass.)

This merits panel cites and relies upon the following  
references not previously of record:

O'Connor et al. (O'Connor)	5,319,000	Jun. 7,
1994 (filed May 8, 1992)		
Anderson et al. (Anderson)	5,639,803	Jun. 17, 1997
(filed Aug. 19, 1991)		

Claims 1 through 11 stand rejected under 35 U.S.C. § 103  
as unpatentable over "the combined teachings of Yeager, Rei et  
al (080) and (657) and Tirpak." (answer, page 3).<sup>2</sup> We reverse  
this rejection for reasons which follow.

Pursuant to the provisions of 37 CFR § 1.196(b), we make

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<sup>2</sup>We note that appellants request reversal of an  
outstanding rejection under 35 U.S.C. § 102(b) on page 7 of  
the brief. We can find no such outstanding rejection in the  
record before us. Accordingly, we will only consider the  
outstanding rejection under 35 U.S.C. § 103.

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the following new rejections: (1) claim 10 is rejected under 35 U.S.C. § 112, fourth paragraph, since claim 10 does not specify a further limitations of the subject matter claimed in the claim it depends upon; (2) claim 11 is rejected under 35 U.S.C. § 102(e) as anticipated by O'Connor or Anderson; (3) claims 1 through 11 are rejected under 35 U.S.C. § 103 as unpatentable over O'Connor or Anderson; and (4) claims 1 through 11 are rejected under the judicially created doctrine of obviousness-type double patenting over claims 1, 7 through 12 and 14 of O'Connor or claims 1 through 5 of Anderson.

#### **OPINION**

##### **A. The Claimed Subject Matter**

As our initial inquiry into a review of the examiner's rejection under § 103, we must analyze the claimed language to determine the scope and meaning of each contested limitation. See *Gechter v. Daivdson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997). During patent examination, the claims must be interpreted as broadly as their terms reasonably allow. See *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

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The claimed subject matter on appeal is directed to a process of preparing a storage stable dispersion of a solid biocide comprising three steps, i.e., mixing a solid biocide and a liquid carrier until a desired particle size for said biocide is obtained, heating this mixture with a heat swellable polymer to a temperature of 50 to 120°C. to provide a hot dispersion, and cooling the hot dispersion under continuous stirring to produce a product with the desired viscosity.

Appellants urge that the claimed subject matter is directed to a dispersion of a solid biocide, where the biocide is clearly not dissolved in a solvent for otherwise the product could not be properly termed a "dispersion" (brief, page 4, and reply brief, page 1-5). All of the prior art applied by the examiner does use a solvent to form a solution of the solid biocide (see Yeager, page 3, lines 15-18, and the abstracts of Rei '080, Rei '657, and Tirpak). The examiner concludes that the language of the appealed claims does not exclude the solvent of the applied prior art (final rejection, page 2, see also the answer, page 4-5). The examiner considers a "dispersion" to be "generic to solution" (answer,

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page 5) and notes that appellants have provided no evidence that their blended product is not a solution of the biocide in the carrier (*id.*, page 6).

During *ex parte* prosecution, "the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification." See *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). In appealed claim 1, step (a) requires mixing a **solid** biocide with a liquid carrier resulting in a desired **particle** size for the biocide/carrier concentrate (emphasis added). All of the applied references mix a solid biocide with a solvent to produce a solution (e.g., see Tirpak, column 2, lines 54-60, and Yeager, Example I). If the solvents of the applied references are considered to be the "liquid carrier" of appealed claim 1, as apparently argued by the examiner, the resulting concentrate of the references will not contain

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"particles" or a "desired particle size" but will yield a homogenous solution. See Tirpak, column 2, line 60; Rei '080, column 2, lines 59-63, column 4, lines 50-53; Rei '657, column 2, lines 39-42, column 6, lines 34-53; and Yeager, page 4, line 20.

Appellants define biocide dispersions as solid particles of biocide dispersed in a liquid with the problems of settling over time and increases in viscosity such that the dispersions solidify during storage (specification, page 2, lines 5-18). Appellants teach adding the solid biocide powder to a carrier and mixing at high speed until "smooth" (see Example 1 and 2).

#### **B. The Examiner's Rejection**

As discussed above, giving the broadest reasonable meaning to the words of the claim in their ordinary usage as they would be understood by the artisan, taking into account the written description in the specification, the requirements of step (a) in appealed claim 1 are not disclosed or suggested by Tirpak, Rei '080, Rei '657, and Yeager.

Although not specifically addressed by the examiner, appealed claim 11 is in product-by-process form, i.e., the product produced by the process of claim 1. It is the

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patentability of the products defined by product-by-process claims, and not the processes for making them, that must be gauged in light of the prior art. See *In re Wertheim*, 541 F.2d 257, 271, 191 USPQ 90, 103 (CCPA 1976). A rejection under §§ 102 or 103, jointly or alternatively, is proper where the prior art discloses a product that reasonably appears to be either identical or only slightly different from the product claimed in a product-by-process claim. See *in re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980), and the *Manual of Patent Examining Procedure*, § 2113, 6th ed., Rev. 3, July 1997. The examiner bears a lesser burden of proof in making a case of prima facie obviousness for product-by-process claims because of their peculiar nature than would be the case when a product is claimed in the more conventional fashion. See *In re Fessman*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974).

Even considering the product-by-process form of appealed claim 11, we do not agree with the examiner that the applied prior art reasonably shows a product identical to or slightly different than the claimed product in view of our

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interpretation of the claim language in step (a) of claim 1. The particles present in the claimed dispersion would have produced a different product than the prior art solutions which have no particles present.

In addition to the foregoing requirements of step (a) in appealed claim 1, step (b) requires heating the biocide/carrier concentrate and a heat swellable polymer to a temperature of 50 to 120°C. to cause the polymer to swell and absorb the biocide/carrier concentrate and produce a hot dispersion. None of the references applied by the examiner discloses or teaches this particular heating step. The applied references teach heating the biocide and a solvent to promote solubility but fail to teach heating any biocide/carrier with a heat swellable polymer in the temperature range required by appealed claim 1. See Tirpak, column 2, lines 55-59, Example 1, Rei '080, column 4, line 51, column 8, lines 59-63; Rei '657, column 6, lines 45-53; and Yeager, Example I.

The examiner advances the reasoning that "since heating is generally employed to enhance dispersability it is

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reasonable to conclude that the two blends' mixing could be effected thereby." (answer, page 4). Although this reasoning may be correct, the examiner has failed to explain why it would have been obvious to heat the biocide concentrate and polymer to the claimed temperature range. Yeager does not heat the biocide solution and polymer at all to effect mixing. Tirpak teaches heating to a very high temperature (300 to 400BF.) To form a homogenous composition (column 4, lines 42-46). The Rei patents teach melting or softening the polymer to promote mixing (e.g., se Rei '080, column 9, lines 54-61). The examiner has not shown or explained why the temperature limitations recited in step (b) of appealed claim 1 would have been obvious in view of the applied prior art.

The examiner has also failed to address the limitation of step (c) in appealed claim 1 other than mere reference to cooling *per se* (answer, page 4).

The legal conclusion regarding obviousness relies on a factual foundation, including the definition of the scope and content of the prior art. See *Panduit Corp. V. Dennison Mfg. Co.*, 810 F.2d 1561, 1566-68, 1 USPQ2d 1593, 1595-97 (Fed. Cir.

1987). "Where the legal conclusion of obviousness is not supported by facts it cannot stand." See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967). For the foregoing reasons, we conclude that the examiner has failed to establish a sufficient factual basis to support a *prima facie* case of obviousness. Accordingly, the rejection of claims 1 through 11 under U.S.C. § 103 as unpatentable over *Tirpak*, *Rei* '080, *Rei* '657, and *Yeager* is reversed.

**C. Rejections Pursuant to 37 CFR § 1.196(b)**

**(1) The Rejection Under § 112, Fourth Paragraph**

Claim 10 is rejected under the fourth paragraph of 35 U.S.C. § 112 because this dependent claim contains a reference to a claim previously set forth (claim 1) but fails to specify a further limitation of the subject matter claimed. Claim 10 specifies that the cooling of step (c) in claim 1 is carried out in the presence of continuous stirring. However, claim 1, step (c), "cooling said hot dispersion under continuous stirring". Thus claim 10 does not further limit the subject matter claimed in claim 1.

**(2) The Rejection Under § 102(e)**

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Both O'Connor and Anderson qualify as prior art under § 102(e) since they are patents granted on an application for patent "by another" filed in the U.S. before the invention thereof by the applicant (see 35 U.S.C. § 102(e) (1975)).<sup>3</sup>

Claim 11 is rejected under 35 U.S.C. § 102(e) as anticipated by O'Connor or Anderson. As previously discussed, claim 11 is in product-by-process form. Therefore, we look to the prior art for the disclosure of a product that reasonably appears to be identical to the product claimed, i.e., a dispersion of biocide particles and carrier in a heat swollen polymer with a viscosity of between about 2,000 and about 30,000 centipoise (see claim 1). See *In re Fitzgerald*, 619 F.2d at 70, 205 USPQ at 596.

O'Connor discloses two embodiments for preparing a storage stable dispersion, with the second embodiment comprising the step of heating a mixture of (a) a dispersion of a solid biocide in a plasticizer and (b) a plastisol containing a carrier selected from the group consisting of

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<sup>3</sup>Note that appellants' U.S. filing date is Nov. 19, 1992, while the filing date of O'Connor is May 8, 1992, and the filing date of Anderson is at least Aug. 19, 1991.

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phthalic acid derivatives and epoxidized soybean oil, to an elevated temperature of between 30 to 100°C. to provide a mixture characterized by an increased viscosity sufficient to form a stable dispersion upon cooling (column 2, lines 10-19, and claim 7). Typical cooling, as taught for the first embodiment, is to -20 to 40°C. to provide a mixture having a viscosity of between 2,000 and 30,000 centipoise (see column 2, lines 4-9, and claim 1). Suitable resins useful in the plastisol include poly(vinylchloride) (column 3, lines 48-63). The solid biocide is added to a liquid carrier and mixed at high speed, then heated with the plastisol to form a hot dispersion, with subsequent cooling to produce a stable dispersion with a viscosity of 8500 centipoise (see Example 2 in column 6).

Anderson also discloses two embodiments of forming a storage stable liquid dispersion of a biocide, with the second embodiment comprising the steps of heating a mixture of a biocide, a carrier and a heat swellable polymer to a temperature of about 50 to 120°C. to cause the polymer to swell, with subsequent cooling to a temperature of -20 to 40°C. to provide a storage stable mixture having a viscosity

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of between 2,000 and 30,000 centipoise (column 2, lines 4-21). The biocide/carrier/polymer mixture is prepared by mixing a carrier with a biocide, mixing at high speed until "smooth" to form a preliminary dispersion, and then combining this preliminary dispersion with heat swellable polymer and more carrier (see Example 1 in column 5).

Anderson discloses that the original biocide starting material is in the form of a wet filter cake and thus this water must be removed (see Example 1 in column 5; compare with Example 1 in column 5 of O'Connor). As a matter of claim interpretation, the introductory "comprises" in line 2 of appealed claim 1 opens the claim to the inclusion of other materials and steps, such as the inclusion of water and its subsequent removal. See *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 802 (CCPPA 1981); cf. *Ex parte Hoffman*, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Int. 1989).

The biocide/carrier/heat swollen polymer storage stable dispersion of O'Connor reasonably appears to be a product identical to that produced by the process of appealed claim 1. Similarly, the biocide/carrier/heat swollen polymer storage

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stable dispersion of Anderson reasonably appears to be a product identical to that produced by the process of claim 1 since the inclusion of water, with its subsequent removal in the first step, would not reasonably appear to alter the characteristics of the final product since the viscosity range and storage stable dispersion characteristics of the Anderson product are disclosed as the same as appellants' claimed product.

**(3) The rejection Under 35 U.S.C. § 103**

Claims 1 through 11 are rejected under 35 U.S.C. § 103 as unpatentable over O'Connor or Anderson.

As discussed above, O'Connor discloses a process for preparing a storage stable dispersion of a solid biocide comprising forming a biocide/carrier concentrate with high speed mixing until smooth, heating the concentrate with a heat swellable polymer to between 30 to 100EC., with subsequent cooling provide a storage stable dispersion having a range of viscosity wihtin the range of appealed claim 1. See O'Connor, column 2, lines 10-19, and Example 2. The amounts of each component, high speed mixing, the various biocides, carriers

and resins are all disclosed by O'Connor (column 2, line 35 - column 4, line 63, compare with the limitations of dependent claims 2-10).

Similarly, Anderson discloses the same process as O'Connor but, as discussed above, teaches starting with a wet biocide which necessitates removal of the water in step (a). See Anderson, column 2, line 4 - column 4, line 56, and Example 1. As also discussed above, the term "comprises" in appealed claim 1 renders the scope of the claim inclusive of such components as water and the step of water removal. *See in re Baxter, supra.*

The only limitation of appealed claim 1 that is not disclosed or taught by O'Connor or Anderson is the "continuous stirring" that is recited in step (c) while the hot dispersion is being cooled.<sup>4</sup> However, we take notice that stirring to facilitate cooling was well known and would have been well within the ordinary skill in the art. *See In re Sovish, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985) (Skill is*

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<sup>4</sup>Anderson does teach the effect of stirring at ambient temperature but does not teach stirring during cooling (see Example 7 in column 7).

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presumed on the part of those practicing in the art).

Accordingly, for the foregoing reasons, we conclude that the subject matter of claims 1 through 11 would have been obvious based on the disclosure and teachings of O'Connor or Anderson.

**(4) The Rejection of Obviousness-type Double Patenting**

Claims 1 through 11 are rejected under the judicially created doctrine of obviousness-type double patenting over claims 1, 7 through 12 and 14 of O'Connor or claims 1 through 5 of Anderson. It is noted that the present assignee is the assignee of the O'Connor and Anderson patents while Rahim Hani is a common inventor of this application and the O'Connor and Anderson patents.

In obviousness-type double patenting rejections, one must determine whether the claims of the later filed application would have been obvious in view of the claims of the earlier patent. See *In re Goodman*, 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed. Cir. 1993). Any analysis employed parallels the guidelines for analysis of a § 103 obviousness determination. See *In re Longi*, 759 F.2d 887, 892-93, 225 USPQ 645, 648

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(Fed. Cir. 1985).

Claims 7 through 12 of O'Connor are directed to the second embodiment of the process of O'Connor, with claim 14 directed to the product produced by the process of claim 7. Claims 1 through 5 of Anderson are directed to the second embodiment of the process disclosed by Anderson. Although Anderson does not claim the product of the process of claims 1-5, the resulting product of Anderson's process would be indistinguishable from the here claimed product since the process steps are essentially the same as in appealed claim 1, as discussed above.

As noted above, the analysis of obviousness-type double patenting parallels the obviousness determination outlined above for the rejection under 35 U.S.C. § 103, except that the claims of the earlier filed patents form the basis for the obviousness determination. The claims of O'Connor set forth the same process<sup>5</sup> as in appealed claim 1 except that the cooling step is not specifically recited. However, O'Connor

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<sup>5</sup>It should be noted that the term "plastisol" in claim 7 of O'Connor refers to a mixture of a heat swellable resin and a carrier (see column 2, lines 35-38).

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specifically claims the cooling step parameters for the first embodiment to prepare a storage stable dispersion (see O'Connor, claim 1, step (c)). It would have been obvious to the artisan that the same cooling step as recited in O'Connor's first embodiment in step (c) of claim 1 could reasonably be employed to fulfill the language "to form a stable dispersion upon cooling" in claim 7. As previously discussed, appellants' claimed limitation of cooling while "continuously stirring" would have been within the ordinary skill in the art since it was well known that stirring facilitates the cooling process.

The dependent claim limitations recited in appealed claims 2 through 10 are all disclosed in claims 7 through 12 and 14 of O'Connor except for the use of a high speed mixer at a certain rpm range as set forth in claim 9. However, the use of a specific mixer and mixing speed to produce the desired mixing would have been well within the ordinary skill in the art, especially since the desired mixing of step (a) in claim 1 and the desired mixing of claim 7 in O'Connor produces the same result, i.e., a preliminary dispersion of a solid biocide in a carrier or plasticizer.

Similarly, the discussion above regarding the scope of "comprises" in the appealed claims as including the use of a "wet" biocide as a starting material in Anderson, with subsequent removal of the water (see claim 1 of Anderson), equally applies here in the analysis of obviousness-type double patenting. As previously discussed, appellants' claimed limitation of "continuous stirring" while cooling would have been within the ordinary skill in the art as it was well known to facilitate cooling by stirring.

The dependent claim limitations of appealed claims 2 through 10 are all disclosed in claims 1 through 5 of Anderson except for the limitation of appealed claim 9 of using a high speed mixer at certain rpms to produce the mixture of step (a) in appealed claim 1. However, the use of a specific mixer and mixing speed would have been well within the ordinary skill in the art, especially since the desired mixing of step (a) in appealed claim 1 and step (a) in claim 1 of Anderson produces the same result, i.e., a preliminary dispersion of a solid biocide in a carrier.

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For the foregoing reasons, we conclude the appealed claims would have been obvious in view of the claims of the earlier filed O'Connor or Anderson patents.

**D. Summary**

The rejection of claims 1 through 11 under 35 U.S.C. § 103 as unpatentable over the combined teachings of Tirpak, Rei '080, Rei '657, and Yeager is reversed.

Pursuant to the provisions of 37 CFR § 1.196(b), the following new grounds of rejection have been made. Claim 10 is rejected under 35 U.S.C. § 112, fourth paragraph. Claim 11 is rejected under 35 U.S.C. § 102 (e) as anticipated by O'Connor or Anderson. Claims 1 through 11 are rejected under 35 U.S.C. § 103 as unpatentable over O'Connor or Anderson. Claims 1 through 11 are rejected under the judicially created doctrine of obviousness-type double patenting in view of claims 1, 7 through 12 and 14 of O'Connor or claims 1 through 5 of Anderson.

This decision contains a new grounds of rejection pursuant to 37 CFR § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53, 131, 53, 197 (Oct. 10, 1997), 1203 off. Gaz. Pat. & Trademark Office 63,122 (Oct 21,

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1997) ). 37 CFR § 1.196 (b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196 (b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197 (c) ) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197 (b) by the Board of Patent Appeals and Interferences upon the same record . . . .

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

**Reversed - 37 CFR § 1.196 (b)**

WILLIAM F. SMITH )  
Administrative Patent Judge )  
)

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	)	BOARD OF PATENT
BRADLEY R. GARRIS	)	
Administrative Patent Judge	)	APPEALS AND
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