

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MICHAEL T. ANDREAS

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Appeal 2008-1601  
Application 10/933,927  
Technology Center 1700

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Decided: March 10, 2008

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Before EDWARD C. KIMLIN, THOMAS A. WALTZ, and  
PETER F. KRATZ, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 71-73, 75-80, 82-88, and 91. Claims 89 and 90 have been allowed.

Claim 71 is illustrative:

71. A CMP method comprising:

applying a CMP slurry containing substantially dispersed, solid abrasive material to a substrate;

applying to the substrate a surfactant containing material that exhibits the characteristic of decreasing a settling time for the abrasive material in an aqueous dilution of the slurry by complexing between at least a portion of the abrasive material and the surfactant to form floccule and flocculating at least a majority portion of the abrasive material with the surfactant; and

removing at least some of the abrasive material.

The Examiner relies upon the following reference in the rejection of the appealed claims:

Grieger 5,855,811 Jan. 5, 1999

Appellant's claimed invention is directed to a CMP method comprising applying a slurry containing solid abrasive material to a substrate, and then adding a surfactant to the substrate that flocculates a majority portion of the abrasive material with the surfactant. The surfactant may be a quaternary ammonium substituted salt, such as a quaternary ammonium halide.

Appealed claims 71-73, 75-80, 82-84, 86-88, and 91 stand rejected under 35 U.S.C. § 102(a) and § 102(e) as being anticipated by Grieger. Claim 85 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Grieger.

We have thoroughly reviewed the respective positions advanced by Appellant and the Examiner. As a result, we find ourselves in substantial agreement with the arguments set forth by Appellant that Grieger does not describe the claimed method within the meaning of § 102. Accordingly, we will not sustain the Examiner's rejections.

There is no dispute that Grieger discloses a CMP method of applying to a substrate a slurry containing solid abrasive material and then applying a

quaternary ammonium substituted salt as a surfactant to the substrate. Although Grieger does not teach that the application of the surfactant flocculates the dispersion, it is the Examiner's position that the Grieger method inherently results in flocculation since the same chemicals are used, namely, an abrasive material of ceria and a quaternary ammonium substituted halide.

To the extent that the Examiner has set forth a *prima facie* case of inherency, we find that Appellant has effectively rebutted the Examiner's position. Appellant makes the argument that the generic formula disclosed by Grieger for the quaternary ammonium substituted salt encompasses millions of compounds and it is reasonable to conclude that not all of these compounds act as a flocculating agent in the claimed method, especially since Grieger does not teach that flocculation occurs but, rather, dispersion. In addition, one of the named inventors of the Grieger patent, Michael T. Andreas, has placed of record a declaration under 37 C.F.R. § 1.132 in support of Appellant's position that flocculation does not occur in the Grieger patented method. The declarant states that "[d]ispersion and suspension of planarization residue and flocculation of abrasive material involve opposing processes, even though either may be used for cleaning" (para. 6). The declarant also states that "I was not aware of any compound among the specific tetraalkylammonium hydroxide and tetraalkylammonium fluoride compounds listed in Grieger capable of forming floccule with planarization residue" (para. 4).

Also, our review of Grieger and Appellant's Specification finds no specific quaternary ammonium substituted salts in common. Grieger teaches that tetramethylammonium fluoride (TMAF) and tetraethylammonium

fluoride (TEAF) are preferred salts (col. 4, ll. 27 et seq.). On the other hand, Appellant's Specification does not disclose the use of either of these compounds as a flocculating agent. Rather, Appellant's Specification discloses the use of cetyltrimethylammonium bromide and polyethoxylated quaternary ammonium halide (page 8), as well as ethoxylated stearyl methyl quaternary ammonium chloride and ethoxylated cocoalkyl methyl quaternary ammonium chloride (page 13). Consequently, other than Grieger and Appellant broadly teaching the use of a quaternary ammonium substituted salt, there is no basis for concluding that Grieger and Appellant utilize the same specific compounds. Since inherency must be founded on inevitability and not possibility, we must agree with Appellant that methods fairly taught by Grieger do not perform the claimed flocculating step. It is not insignificant that the appealed claims do **not** call for simply applying a quaternary ammonium substituted salt but specifically recite the step of flocculating the abrasive material.

As for the Examiner's § 103 rejection of claim 85, the Examiner has not set forth a rationale why it would have been obvious for one of ordinary skill in the art to select a flocculating agent for the method of Grieger.

In conclusion, based on the foregoing, we are constrained to reverse the Examiner's rejections.

REVERSED

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WELLS ST. JOHN, P.S.  
601 W. FIRST AVENUE, SUITE 1300  
SPOKANE, WA 99201