

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte MASAYA OKOCHI, MASAKI KITAGAWA,  
TAKASHI TAKEUCHI, HAJIME NISHINO, and HIZURU KOSHINA

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Appeal No. 2002-1059  
Application No. 09/051,933

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ON BRIEF

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Before GARRIS, PAK, and OWENS, Administrative Patent Judges.  
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 4-7, 9, 11, 13, 14 and 16-19. These are all of the claims remaining in the application.

The subject matter on appeal relates to a negative electrode for a lithium secondary battery and to a lithium ion secondary battery having such an electrode. This negative electrode

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comprises a particulate carbon material of artificial graphite which has a volume resistivity not exceeding  $5.0 \times 10^{-3}$  ohm.cm wherein the filling density of the particulate carbon material ranges from 1.2 to 1.40 g/cc. According to the appellants' specification, a lithium ion secondary battery which contains such a negative electrode exhibits the desirable characteristic of relatively low heat generation when internal short-circuiting takes place. This appealed subject matter is adequately illustrated by independent claim 17 which reads as follows:

17. A negative electrode for a lithium secondary battery, the electrode comprising a particulate carbon material enabling the absorption and release of lithium ions, and a binder;

in which:

the particulate carbon material is artificial graphite;

the particulate carbon material has a volume resistivity not exceeding  $5.0 \times 10^{-3}$  ohm.cm; and

the filling density of the particulate carbon material ranges from 1.2 to 1.40 g/cc.

The reference set forth below is relied upon by the examiner as evidence of obviousness:

Takami et al. (Takami)                      5,340,670                      Aug. 23, 1994

All of the claims on appeal are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takami.

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Rather than reiterate the respective positions advocated by the appellants and by the examiner concerning the above noted rejection, we refer to the brief and reply brief and to the answer for a complete exposition thereof.

OPINION

For the reasons which follow, this rejection cannot be sustained.

A pivotal aspect of the examiner's rejection is his position that the negative electrode of Takami would inherently possess a volume resistivity not exceeding  $5.0 \times 10^{-3}$  ohm.cm as required by each of the independent claims on appeal. More specifically, the examiner argues that:

since it has been established that resistivity is a function of filling density and particle size, the artificial graphite of Takami et al. would inherently have a resistivity not exceeding  $5 \times 10^{-3}$   $\Omega$ cm at the filling densities and particle sizes disclosed by the reference that fall within the claimed ranges [answer, page 5].

This inherency position is deficient in a number of respects.

It is first appropriate to emphasize that the initial burden of establishing a prima facie basis to deny patentability rests upon the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Thus, if relying upon the theory of inherency, the examiner must provide a basis in fact and/or

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technical reasoning to reasonably support a determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Ex parte Levy, 17 USPQ2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990).

With these legal principles in mind, we view the examiner's inherency position as deficient with respect to his statement that "it has been established that resistivity is a function of filling density and particle size [i.e., of the artificial graphite disclosed by Takami and claimed by the appellants]" (answer, page 5). While filling density and particle size may be factors which impact the resistivity characteristic of artificial graphite, the record before us is insufficient to establish that these are the only factors which impact resistivity. Therefore, even assuming Takami discloses a negative electrode of artificial graphite having a filling density and particle size within the here claimed ranges, it would not be appropriate on the record before us to consider such an electrode to inherently possess the resistivity characteristic defined by the appealed claims.

Concerning this issue, the examiner in responding to an argument by the appellants states that "there has been no evidence placed on the record that resistivity is dependent on any factors other than filling density and particle size"

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(answer, page 6). This statement reflects that the examiner believes it is the appellants' burden to provide such evidence in order to prove that their claimed resistivity characteristic is not inherently possess by Takami's negative electrode. In fact, however, this belief is entirely contrary to well established principles of law. As previously explained, it is the examiner's initial burden to provide a basis in fact and/or technical reasoning to support his position that the here claimed resistivity characteristic inherently and necessarily flows from the teachings of Takami. Ex parte Levy, 17 USPQ2d at 1463-64.

Even if filling density and particle size are considered to be the only factors which impact the resistivity of artificial graphite, the examiner's inherency position still would be deficient. This is because Takami contains no teaching or suggestion of a negative electrode which has each of the several specific features that must be present in combination in order to obtain the here claimed resistivity characteristic. With respect to this point, we emphasize that an artisan would have to selectively pick and choose from patentee's very broad disclosure the very specific combination of the negative electrode features claimed by the appellants, namely, (1) artificial graphite as the particulate carbon material, (2) a filling density in the range

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from 1.2 to 1.40 g/cc, and (3) an average particle size of 15 to 25  $\mu\text{m}$ .

It is here appropriate to stress the breadth of Takami's disclosure regarding each of these features. In particular, patentee discloses that his negative electrode may be manufactured from an extremely wide variety of carbonaceous materials (e.g., see the disclosure spanning columns 6 through 10) and that the carbonaceous material may be in the form of either fibers or particles (e.g., see lines 15-19 in column 10) and that the aforementioned particles may have an average particle size of 1 to 80  $\mu\text{m}$  (e.g., see lines 20-21 in column 10). In addition, patentee's only disclosure concerning the density of his negative electrode relates to bulk density (i.e., the combined densities of Takami's carbonaceous material and binder) in contrast to the here claimed filling density (i.e., of the particulate carbon material only) and constitutes a broad range from 1.35 to 1.80  $\text{g}/\text{cm}^3$  in contrast to the 1.2 to 1.40 g/cc filling density range claimed by the appellants (e.g., see lines 25-28 in column 18 of the patent). We perceive nothing, and the examiner points to nothing, in the Takami reference which would have suggested precisely selecting from the very broad disclosure of this reference the feature of artificial graphite as the

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carbon material, in combination with a particle rather than fiber as the chosen form of carbonaceous material, in combination with a specific particle size range of 15 to 25  $\mu\text{m}$  from patentee's broad 1 to 80  $\mu\text{m}$  range, in combination with a bulk density within patentee's 1.35 to 1.80  $\text{g}/\text{cm}^3$  range which by serendipity would satisfy the here claimed filling density range of 1.2 to 1.40  $\text{g}/\text{cc}$ .

On the record of this appeal, it is only the appellants' own disclosure which provides any guidance for precisely and selectively choosing the above discussed features in combination, thereby resulting in a negative electrode having a volume resistivity within the range defined by the appealed claims. We are compelled to conclude, therefore, that the examiner in formulating his rejection has unwittingly fallen victim to the insidious effect of hindsight syndrome wherein that which only the inventor has taught is used against its teacher. W. L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Thus, even when viewed in its most generous light, the examiner's inherency position must be regarded as deficient in that it is ultimately based upon impermissible hindsight.

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For the above stated reasons, we cannot sustain the examiner's section 103 rejection of all appealed claims as being unpatentable over Takami.

The decision of the examiner is reversed.

REVERSED

Bradley R. Garris	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
Chung K. Pak	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
Terry J. Owens	)	
Administrative Patent Judge	)	

BRG:tdl

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