

The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARK A. SCHUBERT, JING ZHANG,
GUANGHONG ZHENG, FRANK H. FEDDRIX,
RICHARD A. LANGAN, FRANK B. TUDRON,
GARY R. TUCHOLSKI, ABDELKADER HILMI,
JOHN C. BAILEY, and ANDREW WEBBER

Appeal 2007-2550
Application 10/321,182
Technology Center 1700

Decided: September 5, 2007

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 38-41 and 87-91. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

INTRODUCTION

Appellants claim a flat flexible battery having, in relevant part, an internal current collector 13 and an external terminal 17 positioned such that a second end of the internal current collector 13 is positioned within a seal junction 15 of the battery and a first end of the external terminal 17 is positioned within the seal junction 15 (claim 38, Figure 2).

Claims 38, 40, and 91 are illustrative:

38. A flat flexible battery comprising an electrode, at least one electrode internal current collector having first and second ends and at least one electrode external terminal having first and second ends, and a flexible nonconductive packaging material, said packaging material sealed together at at least one seal junction to form a seal area and a sealed housing surrounding said electrode, wherein said internal current collector and said external terminal are discrete structures, and wherein said internal current collector first end contacts said electrode, said internal current collector second end is positioned within said seal junction, said external terminal first end is positioned within said seal junction and said external terminal second end is positioned external said seal junction and external said housing.

40. The battery of claim 38 wherein said internal current collector and said external terminal are not in physical contact within said seal junction.

91. The battery of claim 38, wherein the internal current collector and external terminal form a discontinuous current carrying structure within the seal area.

The Examiner relies on the following prior art references as evidence of unpatentability:

Lake	US 6,030,423	Feb. 29, 2000
Kucherovsky	US 6,379,835 B1	Apr. 30, 2002
Fujita	US 6,884,546 B1	Apr. 26, 2005

The rejections as presented by the Examiner are as follows:

1. Claims 38-41 are rejected under 35 U.S.C. § 102(e) as being unpatentable over Kucherovsky.
2. Claims 87-90 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kucherovsky in view of Lake.
3. Claim 91 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kucherovsky in view of Fujita.

Appellants separately argue claims 38, 40, and 91. Accordingly, claims 39, 41, and 90, which depend from claim 38, stand or fall with claim 38. Claims 87-89, which depend from claim 40, stand or fall with claim 40.

OPINION

35 U.S.C. § 102(e) REJECTION OVER KUCHEROVSKY

INDEPENDENT CLAIM 38

Appellants argue that Kucherovsky fails to disclose positioning an end of the internal current collector and an end of the external terminal within the seal junction that forms the seal area (Br. 7). Appellants argue that Kucherovsky discloses that electrical contacts 50, 52 (i.e., external terminals) are located substantially inward from the outer edge of the layers 22 and 24 such that electrical contacts 50, 52 (i.e., external terminals) form a continuous metal surface extending through the area where layers 22 and 24 are sealed together (Br. 7).

We have considered Appellants' arguments and are unpersuaded for the reasons below.

Kucherovsky discloses, in relevant part, a flexible battery having an anode current collector 28 and a cathode current collector 26 (i.e., internal

current collectors), and electrical contacts 50 and 52 (i.e., external terminals) (Kucherovsky, col. 4, ll. 13-40). Kucherovsky further discloses that the electrical contact 50 (i.e., external terminal) “can be” connected to the cathode current collector 26 (i.e., internal current collector), and electrical contact 52 (i.e., external terminal) “may be” connected to the anode current collector 28 (i.e., internal current collector) (Kucherovsky, col. 4, ll. 24-25, 39-40). Kucherovsky discloses that the films 22 and 24, which comprise the outer layers of the battery, can be sealed together with adhesive, or by heat sealing or laminating (Kucherovsky, col. 4, ll. 3-6). Kucherovsky further discloses in Figures 1 and 2 that the electrical contact 52 (i.e., external terminal) and anode current collector 28 (i.e., internal current collector) are adjacent the edges of film 22 and 24 (Kucherovsky, Figures 1 and 2).

From the above disclosures, it is evident that Kucherovsky discloses, for example, that the area where the anode current collector 28 (i.e., internal current collector) connects to the electrical contact 52 (i.e., external terminal) is partially contained within the seal junction formed by the edges of films 22 and 24 (i.e., the left-hand side of the films 22 and 24 as shown in Kucherovsky’s Figure 2).

Appellants’ claim 38 does not exclude an end of the external terminal and an end of the internal current collector being partially contained within the seal junction. In other words, the phrase “within said seal junction” in claim 38 may broadly and reasonably be construed as including an end of an external terminal and an end of an internal current collector being partially contained within the seal junction. *In re American Academy of Science Tech Center*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004).

From the above claim construction, we determine that Appellants' argued distinction is inclusive of Kucherovsky's disclosure, for example, that an end of the electrical contact 52 (i.e., external terminal) and an end of the anode current collector (i.e., internal current collector) are partially contained within the seal junction.

Moreover, we agree with Examiner that when the flexible battery structure shown in Kucherovsky's Figure 1 is finally compressed to form the battery, Kucherovsky's seal 36 will spread out to contact the anode and cathode current collectors 28 and 26, the anode 32, cathode 30, separator 40, and electrical contacts 50 and 52 (Answer 6). Kucherovsky discloses that seal 36 is between upper and lower film layers 22 and 24, and extends beyond the outer diameter of the internal components of the battery (i.e., anode, cathode, current collectors, separator, and electrical contacts) (Kucherovsky, col. 7, ll. 30-34; Figure 1). Such disclosure supports the Examiner's position that seal 36 will be in contact with the internal components of the battery, such that, for example, where an end of the electrical contact 52 (i.e., external terminal) and an end of the anode current collector (i.e., internal current collector) touch will be partially within the seal junction (i.e., the bond between the seal 36 and films 22 and 24).

Therefore, we affirm the Examiner's § 102(e) rejection of claims 38, 39, and 41.

DEPENDENT CLAIM 40

Claim 40 depends from claim 38 and further recites that "said internal current collector and said external terminal are not in physical contact within said seal junction" (claim 40).

Appeal 2007-2550
Application 10/321,182

Appellants argue that Kucherovsky does not disclose an internal current collector and an external terminal having ends within a seal junction wherein the internal current collector and the external terminal are not in physical contact within the seal junction (Br. 8).

We have considered Appellants' argument and cannot sustain the Examiner's § 102(e) rejection of claim 40.

As noted above, Kucherovsky discloses an end of the electrical contacts 50 and 52 (i.e., external terminals) being in physical contact with an end of the cathode current collector 26 and anode current collector 28 (i.e., internal current collectors), respectively, partially within the seal junction (Kucherovsky, Figures 1 and 2). Kucherovsky does not disclose that the electrical contacts 50, 52 (i.e., external terminals) and cathode and anode current collectors 26, 28 (i.e., internal current collectors) have ends positioned within the seal junction that are not in physical contact with one another. Therefore, Kucherovsky does not disclose the subject matter of claim 40.

We reverse the Examiner's § 102(e) rejection of claim 40 over Kucherovsky.

35 U.S.C. § 103(a) REJECTION OVER KUCHEROVSKY IN VIEW OF LAKE

DEPENDENT CLAIMS 87-89

Appellants have not separately argued the § 103(a) rejection over Kucherovksy in view of Lake. However, claims 87-89 depend or ultimately depend from claim 40, the rejection of which under § 102(e) over Kucherovsky has been reversed.

Appeal 2007-2550
Application 10/321,182

Accordingly, because claims 87-89 depend or ultimately depend upon claim 40, we cannot sustain the § 103(a) rejection of claims 87-89 over Kucherovsky in view of Lake.

We reverse the Examiner's § 103(a) rejection of claims 87-89 over Kucherovsky in view of Lake.

DEPENDENT CLAIM 90

Claim 90 depends upon independent claim 38, the rejection of which under § 102(e) over Kucherovsky we affirmed. Appellants have not separately argued claim 90. Rather, Appellants rely on their arguments made with regard to the rejection of independent claim 38. However, we are unpersuaded by Appellants' arguments regarding the § 102(e) rejection of claim 38 over Kucherovsky.

Therefore, we affirm the Examiner's § 103(a) rejection of claim 90 over Kucherovsky in view of Lake.

35 U.S.C. § 103(a) REJECTION OVER KUCHEROVSKY IN VIEW OF FUJITA

Appellants argue that neither Kucherovsky nor Fujita discloses a discontinuous current carrying structure formed by an internal current collector and an external terminal within the seal area (Br. 9). Appellants further argue that there is no motivation to provide a discontinuous current carrying structure within the seal area of Kucherovsky or Fujita (Br. 9).

We have considered all of Appellants' arguments and are unpersuaded for the reasons below.

The combination of Fujita's positive temperature coefficient (PTC) device with Kucherovsky's flexible battery structure proposed by the Examiner would have included placing Fujita's PTC between, for example, the electrical contact 52 (i.e., external terminal) and anode current collector 28 (i.e., internal current collector) (Answer 4). The Examiner concludes that such placement of Fujita's PTC in Kucherovsky's flexible battery would have been obvious in order to provide a safety device for the battery that would disconnect the power and prevent the battery from exploding when it is exposed to extreme conditions (Answer 4). We agree.

As discussed previously with regard to claim 38, Kucherovsky discloses that the connection between electrical contact 52 (i.e., external terminal) and anode current collector 28 (i.e., internal current collector), for example, is partially contained within the seal junction. Accordingly, when Kucherovsky's electrical contact 52 (i.e., external terminal) and anode current collector 28 (i.e., internal current collector) connection would have been modified to include Fujita's PTC between them, the PTC, electrical contact 52 (i.e., external terminal) and anode current collector 28 (i.e., internal current collector) would have been at least partially in contact with the seal junction. Therefore, the combination of Fujita's PTC with Kucherovsky's flexible battery would have included a discontinuous current carrying structure within the seal area as claimed.

Regarding Appellants' lack of motivation argument, we note that the Examiner's motivation for the combination of Kucherovsky in view of Fujita comes directly from the references. *In re Rouffet*, 149 F.3d 1350, 1357-58, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998). Specifically, the Examiner indicated that providing the PTC adds a safety device to the

battery, which Fujita clearly discloses the PTC as so being (Fujita, col. 14, ll. 30-48).

We add that the Examiner’s combination of Fujita’s PTC safety device with Kucherovsky’s flexible flat battery involves merely the predictable use of prior art elements according to their established functions. *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007). In the present case, combining Fujita’s PTC, a known battery safety device, with Kucherovsky’s flexible battery would have provided an added safety feature to the battery according to the established function of the PTC by Fujita. Accordingly, the combination of Kucherovsky’s flexible battery in view of Fujita’s PTC safety device would have been obvious because it is merely the predictable use of prior art elements according to their established functions. *Id.*

For the above reasons, we affirm the Examiner’s § 103(a) rejection of claim 91 over Kucherovsky in view of Fujita.¹

¹ The Examiner rejected claim 91 under § 103(a). However, it appears to us that claim 91, when given its broadest reasonable construction, is actually anticipated by Kucherovsky under § 102(e). Specifically, Appellants define “discontinuous” current carrying system as including “a current carrying system . . . where two distinct structures are employed for the purpose of carrying current between an electrode and the external cell terminal” (Specification 31:14-16). Appellants further provide an example of a “discontinuous” current carrying structure as including one where the external terminal end and the internal current collector end are in “direct contact” (Specification 31). Therefore, according to Appellants’ definition, the recitation in claim 91 to “a discontinuous current carrying structure in the seal area” may be inclusive of, for example, Kucherovsky’s electrical contact 52 (i.e., external terminal) and anode current collector 28 (i.e., internal current collector) being in direct physical contact and partially contained in the seal junction as Kucherovsky discloses (See our discussion

DECISION

The Examiner's § 102(e) rejection of claims 38, 39, and 41 over Kucherovsky is AFFIRMED.

The Examiner's § 102(e) rejection of claim 40 over Kucherovsky is REVERSED.

The Examiner's § 103(a) rejection of claims 87-89 over Kucherovsky in view of Lake is REVERSED.

The Examiner's § 103(a) rejection of claim 90 over Kucherovsky in view of Lake is AFFIRMED.

The Examiner's § 103(a) rejection of claim 91 over Kucherovsky in view of Fujita is AFFIRMED.

The Examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

clj

Eveready Battery Company
25225 Detroit Road
Post Office Box 450777
Westlake, OH 44145

with regard to claim 38). The Examiner should address this anticipation issue in future prosecution.