

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 31

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte GERALD A. LUNDE

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Appeal No. 2001-0888  
Application No. 08/790,559

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ON BRIEF

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Before GARRIS, LIEBERMAN, and JEFFREY T. SMITH, Administrative Patent Judges.  
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 20-44 and 57-59. These are all of the claims remaining in the application.

The subject matter on appeal relates to a method useful in forming a composite body. In one embodiment, the method includes the steps of providing a mandrel body, positioning a bladder around the mandrel body, wherein the bladder has a caul sheet section coupled to the outer surface thereof, and placing a plurality of fibers around the

bladder and caul sheet to form an uncured body. In another embodiment, the method comprises the steps of providing a mandrel body having one or more fluid openings along with a mandrel body fluid system capable of supplying pressurized fluid and a vacuum to said one or more openings, and placing a plurality of fibers around the outer surface of the mandrel body to form an uncured body. This appealed subject matter is adequately illustrated by representative claims 20 and 33 which read as follows:

20. A method useful in forming a composite body, comprising the steps of:

providing a mandrel body having an outer surface;

positioning a bladder having outer and inner surfaces around said mandrel body; said bladder having at least one caul sheet section coupled to said outer surface of said bladder; and

placing a plurality of fibers around said bladder and caul sheet to form an uncured body.

33. A method useful in forming a composite body, comprising the steps of:

providing a tool useful in forming a composite body, said tool comprising:

a mandrel body having an outer surface, said mandrel body having an elongated shape and a longitudinal axis and having one or more fluid openings defined in said mandrel body outer surface;

a mandrel body fluid system capable of supplying pressurized fluid and a vacuum to said one or more openings in said mandrel body outer surface; and

placing a plurality of fibers around said outer surface of said mandrel body to form an uncured body, said fibers being placed around said mandrel body in a plurality of discontinuous segments juxtaposed in relation to each other such that said discontinuous segments are capable of moving in relation to each other such that said uncured body is expandable from within.

The references relied upon by the examiner as evidence of obviousness are:

VonVolkli	4,780,262	Oct. 25, 1988
Azzani et al. (Azzani)	5,013,514	May 7, 1991

Darrieux et al. (Darrieux)	5,571,357	Nov. 5, 1996
Lin et al. (Lin)	5,645,668	Jul. 8, 1997

Claims 20-23, 25-27, 38-44, and 58 are rejected under 35 U.S.C. § 103 as being unpatentable over VonVolkli in view of Lin, and claim 24 is correspondingly rejected over these references and further in view of Azzani.

In addition, claims 20, 28-37, 57, and 59 are rejected under 35 U.S.C. § 103 as being unpatentable over Darrieux in view of VonVolkli.

As indicated on page 14 of the Brief, certain of the appealed claims have been grouped and argued separately on this appeal. Accordingly, in assessing the merits of the above noted rejections, we have individually considered these separately grouped and argued claims. See 37 CFR § 1.192(c)(7)(1999).

We refer to the Brief and Reply Brief and to the Answer for a thorough discussion of the opposing viewpoints expressed by the appellant and by the examiner concerning these rejections.

#### Opinion

For the reasons set forth in the Answer and below, we will sustain the examiner's § 103 rejections as applied against claims 33-36, 38, 39, 41-44, and 59. However, we will not sustain the examiner's § 103 rejections as applied against claims 20-32, 37, 40, 57, and 58.

Each of these last mentioned claims is directed to a method which requires that a caul sheet section be "coupled" to the outer surface of a bladder. For example,

independent claim 20 defines a method comprising the steps of providing a mandrel body, positioning a bladder around the mandrel body wherein the bladder has "at least one caul sheet section coupled to said outer surface of said bladder," and placing a plurality of fibers around the bladder and caul sheet to form an uncured body.

Concerning the here claimed "coupled" feature, the examiner regards VonVolkli's flexible boot and his weaved nylon fabric (i.e., see lines 52-56 in column 5) as corresponding respectively to the appellant's claimed bladder and caul sheet section and argues that "since the weaved nylon fabric is maintained onto the boot (bladder) [of VonVolkli] . . . throughout the molding process, such an assembly can be considered as 'coupled'" (Answer, page 4). This argument is not well taken.

As correctly argued by the appellant, the weaved nylon fabric referred to by the examiner becomes part of the finished radome product of VonVolkli (e.g., again see lines 52-56 in column 5) and thus is intended by patentee to be separable from his flexible boot. Indeed, VonVolkli expressly teaches using a release agent on the outer surface of this boot in order to assist in separating the cured composite material of the finished radome product from the boot (e.g., see lines 34-44 in column 5 in conjunction with lines 7-22 in column 7). Under these circumstances, patentee's weaved nylon fabric and boot cannot be regarded as satisfying the here claimed "coupled" feature simply because the fabric and boot are temporarily in contact during a portion of VonVolkli's method.

It is here appropriate to remind the examiner that application claims before the Patent and Trademark Office are to be given their broadest reasonable interpretation consistent with the specification. In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385,

388 (Fed. Cir. 1983). Though broad, the examiner's interpretation of the claims under review is not reasonable or consistent with the appellant's specification. For example, on pages 17-19 of this specification, the appellant discloses an integral (as opposed to a non-integral or separable) bladder/caul sheet embodiment wherein "a caul sheet section **44** may be coupled or bonded to a bladder **43** in any suitable manner, including by pre-fabrication and attachment with adhesive, or by laying up uncured rubber and uncured prepreg fabric in a mold and then co-curing them together" (page 19, lines 3-6). Furthermore, this disclosure is consistent with commonly accepted definitions of the verb "coupled" (e.g., "To link together: connect" or "To unite chemically;" Webster's II, New Riverside University Dictionary, 1984).

In light of the foregoing, we are convinced that it would be unreasonable and inconsistent with the appellant's specification disclosure to interpret the here claimed "coupled" feature as being satisfied by the mere contact which temporarily occurs between VonVolkli's weaved nylon fabric and boot. It follows that we cannot sustain the examiner's prior art rejection of the claims which require this "coupled" feature which are claims 20-32, 37, 40, 57, and 58.

Concerning the § 103 rejection of claims 38, 39, and 41-44 as being unpatentable over VonVolkli in view of Lin, we share the examiner's basic conclusion that it would have been obvious for an artisan with ordinary skill to provide the method of VonVolkli with a fluid system capable of supplying, not only a vacuum as taught by patentee but also, pressurized fluid to the mandrel body openings in view of and for the reasons taught by Lin. An artisan would have been particularly motivated to provide VonVolkli with this pressurized fluid feature in order to obtain the benefits taught by Lin

(e.g., see lines 15-21 in column 5), namely, assistance in detaching from the mandrel body the inflatable bladder/boot and composite body of VonVolkli.

In support of his nonobviousness position, the appellant argues that "Von Volkli states **nothing** about the need to take any further steps to reduce friction between the boot and the support fixture [i.e., mandrel body]" and "[t]herefore, Applicant submits that the vacuum drawn between the boot and mold assembly allows the boot and uncured composite to be removed from the support fixture **without the need for further assistance**" (Brief, page 22). The appellant then concludes "[t]hus there is no reason to combine the teachings of the two references [i.e., VonVolkli and Lin]" (Brief, page 22). We cannot agree.

In our view, the cumulative teachings of the references under consideration would have motivated the artisan to combine them in the manner proposed by the examiner so as to ensure an effective removal of VonVolkli's boot/bladder from his support fixture/mandrel body. Indeed, as indicated by the examiner on page 12 of the Answer, the fact that VonVolkli applies powdered talc between his fixture and boot (e.g., see lines 34-37 in column 5) would have suggested the potential for difficulty in assembling as well as disassembling these structures and therefore would have suggested the desirability (and thus the obviousness) of providing VonVolkli's fluid system with a pressurized fluid supply as taught by Lin in order to avoid such potential difficulties.

The appellant also argues that the examiner's proposed combination of VonVolkli and Lin would not have been obvious because it would have changed VonVolkli's principle of operation. We do not agree that VonVolkli's principle of

operation would have been so changed as to militate against an obviousness conclusion. This is because the modified method of VonVolkli would have remained unchanged in all respects except for the use of pressurized fluid to assist in disengaging the support fixture and boot. We do not perceive and the appellant does not explain why this one modification would alter VonVolkli's principle of operation to such an extent that the modification would not have been obvious to an artisan with ordinary skill.

For the reasons set forth above and in the Answer, we will sustain the examiner's § 103 rejection of claims 38, 39, and 41-44 as being unpatentable over VonVolkli in view of Lin.

Concerning the § 103 rejection of claims 33-36 and 59, we additionally share the examiner's conclusion that it would have been obvious to provide the pressurized fluid system of Darrieux with the capability of applying a vacuum of the type and for the reasons taught by VonVolkli. This provision would have been motivated by the desire to combine the benefits of Darrieux's pressurized fluid system with the benefits of VonVolkli's vacuum system. In support of his contrary view, the appellant argues that, "[s]ince bladder **12** in Darrieux is not sealed until after the layup of fibers has occurred, Applicant submits that a vacuum as taught by Von Volkli (i.e., a vacuum used **during the layup procedure**) would be useless as applied to Darrieux because no seal is present in Darrieux that would prevent air from continuing to be drawn through the openings in bar **6**" (Brief, page 41).

This argument is unpersuasive because it is implicitly premised upon an incorrect test for obviousness. The test for obviousness is not, as the appellant seems

to believe, whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference or that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

In making his argument, the appellant contends an artisan would have bodily incorporated VonVolkli's vacuum feature into the method/structure of Darrieux to thereby yield the useless result of an inoperable vacuum system. This not the test for obviousness. Id. Moreover, such a contention presumes stupidity rather than skill on the artisan. In re Sovish, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985). In applying the correct test for obviousness, we (like the examiner) are led to the conclusion that the combined teachings of Darrieux and VonVolkli would have suggested to the artisan providing Darrieux's pressurized fluid system with a vacuum feature in order to obtain the benefits taught by VonVolkli.

For these reasons and those expressed in the Answer, the § 103 rejection of claims 33-36 and 59 as being unpatentable over Darrieux in view of VonVolkli also will be sustained.

The decision of the examiner is affirmed-in-part.

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

AFFIRMED-IN-PART

Bradley R. Garris )  
Administrative Patent Judge )  
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) BOARD OF PATENT  
Paul Lieberman )  
Administrative Patent Judge ) APPEALS AND  
)  
) INTERFERENCES  
Jeffrey T. Smith )  
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Appeal No. 2001-0888  
Application No. 08/790,559

Page 10

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