

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. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM B. GOLDSWORTHY,
GEORGE J. KORZENIOWSKI
and THOMAS G. CARTER

Appeal No. 2002-0919
Application No. 09/152,170

ON BRIEF

Before PAK, JEFFREY T. SMITH and POTEATE, *Administrative Patent Judges*.
JEFFREY T. SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicants appeal the decision of the Primary Examiner finally rejecting claims 1 to 25, all of the pending claims in the application. We have jurisdiction under 35 U.S.C. § 134.

BACKGROUND

Appellants' invention relates to a process for fabricating a composite vessel. The composite vessel is fabricated by winding a fiber and a thermoplastic material over a thermoplastic liner to form a composite intermediate structure. The composite intermediate structure is placed in a mold wherein the composite intermediate is heated and a force is applied to urge the composite intermediate structure against the walls of the mold. The heating and pressure are continued until the thermoplastic liner and overlaid layer consolidate to form a composite vessel. The mold is cooled until a composite vessel is solidified. Claim 1, which is representative of the claimed invention, appears below:

1. The process for making a composite vessel comprising the steps of:
 - A) fabricating a thermoplastic liner for the vessel;
 - B) overlaying onto the thermoplastic liner a layer comprising fiber and a thermoplastic material to obtain a composite intermediate structure;
 - C) heating the composite intermediate structure in a mold while applying at least one force thereto tending to urge the composite intermediate structure against and into the shape of the interior walls of the mold;
 - D) continuing step C) until the thermoplastic liner and the overlaid layer consolidate to form a composite vessel;
 - E) cooling the mold and composite vessel until the composite vessel is solidified; and
 - F) removing the formed composite vessel from the mold.

CITED PRIOR ART

As evidence of unpatentability, the Examiner relies on the following references:

Ashton et al. (Ashton)	3,970,495	Jul. 20, 1976
Forsman	5,025,943	Jun. 25, 1991
Berg et al. (Berg)	5,208,051	May 04, 1993

The Examiner rejected claims 1 to 25 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Forsman, Ashton and Berg. (Answer, p. 3).

DISCUSSION

We have carefully reviewed the claims, specification and applied prior art, including all of the arguments advanced by both the Examiner and Appellants in support of their respective positions. This review leads us to conclude that the rejection of claims 1 to 25 is not well founded. Our reasons appear below. We will limit our discussion to the independent claims, i.e., claims 1, 11 and 12.

Forsman discloses a process for the formation of a composite vessel that has a fiber material reinforced with a thermoplastic composite shell over a thermoplastic internal liner. (Col. 2, ll. 37 to 57). The thermoplastic impregnated fibers are wound around the thermoplastic liner, which acts as a mandrel. (Col. 3, ll. 57 to 61). The thermoplastic liner may be pressurized while the fiber material is wound. (Col. 4, ll. 7 to 17). Forsman differs

from the claimed invention in that there is no disclosure of consolidating the thermoplastic composite structure in a mold.

Berg discloses a helical tooling process for the production of thermoplastic matrix composite tubes. (Col. 1, ll. 5-6). The process comprises two steps wherein a thermoplastic filament is wrapped or wound onto a cylindrical configuration and the wound fibers are subsequently consolidated. (Col. 1, ll. 30-38). The consolidation step employs heat and pressure. The process of Berg does not use a thermoplastic liner around which the thermoplastic filament is wound. Also, the consolidation step does not occur in a mold.

Ashton discloses a process for making a tubular shaft member. (Col. 1, l. 5). The tubular member is formed from continuous filament winding of fibrous reinforced material such as fiberglass. (Col. 2, ll. 10-12). The filaments are wound on a mandrel that is formed from a flexible thermoplastic membrane. (Col. 2, ll. 17-21; col. 6, ll. 5-9). Ashton discloses that after the filaments are applied to the mandrel, the sheathing is consolidated into a rigid and resilient member. (Col. 7, ll. 23-28). Subsequently, the rigid member is placed into a mold. (Col. 7, ll. 36-38). Once in the mold, the sheathing is expanded to conform to the shape of the mold wherein the bonding resin is cured. (Col. 7, ll. 56-65). After the resin has been cured to a hardened condition, Ashton discloses the flexible membrane mandrel is removed from the fabricated member. (Col. 8, ll. 13-25). Thus, although Ashton discloses a

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consolidation step, this step does not consolidate the thermoplastic liner and the overlaid layer.

None of the cited references discloses the consolidation of a thermoplastic liner and the overlaid filament layer to form a composite vessel. Thus, the combination of Forsman, Ashton and Berg as proposed by the Examiner would not provide the invention of claims 1, 11 and 12. The mere fact that the prior art could be modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984); *In re Laskowski*, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398 (Fed. Cir. 1989). The record indicates that the motivation relied upon by the Examiner suggesting the combination of Forsman, Ashton and Berg came from the Appellants' description of their invention in the specification rather than coming from the applied prior art and that, therefore, the Examiner used impermissible hindsight in rejecting the claims. *See W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960). Accordingly, we reverse the Examiner's rejection under 35 U.S.C. § 103(a) of claims 1 to 25 over the combination of Forsman, Ashton and Berg.

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REVERSED

CHUNG K. PAK
Administrative Patent Judge

JEFFREY T. SMITH
Administrative Patent Judge

LINDA R. POTEATE
Administrative Patent Judge

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SQUIER, SANDERS & DEMPSEY
TWO RENAISSANCE SQUARE
40 NORTH CENTRAL AVENUE
SUITE 2700
PHOENIX, AZ 85004-4498