

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

Ex parte ROY S. CUNDIFF and
ANTHONY MANCUSO

Appeal No. 2005-1955
Application No. 10/121,737

ON BRIEF

Before WARREN, JEFFREY T. SMITH and FRANKLIN, Administrative Patent Judges.

JEFFREY T. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1-8 and 19-24, all of the pending claims. We have jurisdiction under 35 U.S.C. 143.

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BACKGROUND

The Appellants' invention relates to a pressure vessel comprising a complete shell liner including at least two separate portions which have been bonded together. The liner shell is formed from composite materials and is covered by an outer structure which is also fabricated from composite materials to form the claimed pressure vessel. Claim 1 which is representative of the claim invention is reproduced from the Final Rejection below.

1. A pressure vessel for containing cryogenic or other materials, the vessel comprising:

a complete liner shell including at least two separate portions bonded together, each fabricated from composite material and cured out-of-autoclave; and

an outer structure fabricated from composite material applied over an entire surface of the complete shell liner to complete the vessel.

CITED PRIOR ART

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

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|----------------|--------------------------------|---------------|
| 4,004,706 | Guldenfels et al. (Guldenfels) | Jan. 25, 1977 |
| 5,383,566 | Johnson | Jan. 24, 1995 |
| 5,469,985 | Furuichi et al. (Furuichi) | Nov. 28, 1995 |
| 5,476,189 | Duvall et al. (Duvall) | Dec. 19, 1995 |
| 2003/0021628A1 | Gudaitis et al. (Gudaitis) | Jan. 30, 2003 |

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The Examiner has rejected the appeal claims as follows;

I. Claims 1, 19, 20 and 22-24 stand rejected under 35 U.S.C. § 102(b) as anticipated by Guldenfels.

II. Claims 1-3, 7, 8, 20, 21, 23 and 24 stand rejected under 35 U.S.C. § 102(b) as anticipated by Johnson.

III. Claim 4 stands rejected under 35 U.S.C. § 103(a) as obvious over Guldenfels or Johnson in view of Duvall.

IV. Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as obvious over Guldenfels or Johnson in view of Furuichi.

V. Claim 6 stands rejected under 35 U.S.C. § 103(a) as obvious over Guldenfels or Johnson in view Furuichi and further in view of Gudaitis.

VI. Claim 8 stands rejected under 35 U.S.C. § 103(a) as obvious over Johnson in view of Gudaitis. (Final Rejection, pp. 2-4).

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 Examiner's rejection of claims 1, 19, 20 and 22-24 over Guldenfels and the rejection of claim 4 over the combination of Guldenfels and Duvall are well

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founded. However, we determine that the remainder of the rejections are not well founded. Our reasons for our determinations follow.

Rather than reiterate the conflicting view points advanced by the Examiner and the Appellants regarding the above noted rejections, we make reference to Appellants' Brief filed July 13, 2004, the Examiner's Final Rejection mailed February 13, 2004, and the Examiner's answer mailed January 26, 2005.

OPINION

Claims 1, 19, 20 and 22-24 stand rejected under 35 U.S.C. § 102(b) as anticipated by Guldenfels. According to the Examiner, Guldenfels discloses a pressure vessel comprising a complete liner shell (layers 28a, 29a and 30) which are formed from at least two separate portions. The Examiner also found that this pressure vessel is fabricated from composite materials for the inner liner shell and the outer shell structure is also fabricated from composite materials. The Examiner also asserts that these composite materials are cured out of an autoclave. (Final Rejection, p. 2).

Appellants argue that it cannot be determined where Guldenfels discloses the pressure vessel is cured out of an autoclave. (Brief, p. 5). Appellants' argument is not persuasive. There is no indication in the Guldenfels reference that an autoclave is required for curing the disclosed pressure vessel. Appellants

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have failed to point to specific portions of the Guldenfels reference which would indicate that the described vessel would normally have been cured in an autoclave environment. The present record is devoid of information which establishes that pressure vessels of the type described by the presently claimed invention and those of Guldenfels are normally cured in an autoclave environment.

Appellants argue that layers 28a and 28b are not made of a composite material but are applied to protect from corrosion. Appellants also argue that these layers, 28a and 28b, do not complete the vessel and are not applied over the entire surface of the completed shell. (Brief, p. 5).

These arguments are not persuasive. The Examiner is relying on layers 28b and 29b as forming the composite material forming the outer structure of the pressure vessel. (See Final Rejection, p. 2). Appellants have not argued that the layers 28b and 29b do not form a composite structure. Appellants' argument that the vessel of Guldenfels is not completed until the lapped winding of plastic-impregnated glass thread material (23) is applied to the vessel. Appellants assert that this layer 23 is not applied to the entire outer structure of the vessel. (It appears Appellants are referring to the structure described by Figure 5 to support this position). This argument is not persuasive of patentability. Claim 1 utilizes the term "comprising" when describing the pressure vessel. Thus, the claim

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language does not preclude the addition of other components such as a band encircling the vessel for reinforcement purposes.

Appellants' argument regarding Claims 19, 20 and 22-24 have been fully considered. Appellants have failed to present specific arguments for claims 19, 20, 23 and 24. Rather, Appellants state that these claims specify additional features. (Brief, p. 6). Since Appellants have failed to provide specific arguments directed to the individual claim limitations, these claims will stand or fall with the discussion of claim 1 above.

Regarding claim 22, Appellants argue that Guldenfels does not disclose that the two halves are held together with a splice band. Specifically Appellants argue that the winding (23) of Guldenfels fails to meet the present invention because the band is applied over the outer structure. (Brief, p. 6). As stated above, the winding (23) of Guldenfels is not excluded by the presently claimed invention. Claim 22 does not limit the splice band to being formed on the interior of the vessel. Thus, the winding disclosed by Guldenfels would meet the present claim limitations as suggested by the Examiner.

The Examiner rejected the subject matter of claim 4 under 35 U.S.C. § 103(a) over the combined teachings of Guldenfels and Duvall. The subject matter of claim 4 specifies that the boss fitting which is integrated into at least one of the domed ends of the vessel is formed of a composite material. Guldenfels describe

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a pressure vessel which includes an end wall part (72) which is a fitting for a flange connection. (Note Figure 6 and column 5). The Examiner asserts that Guldenfels does not disclose the material of the composite fitting. (Final Rejection, p. 3). The Examiner asserts that Duvall teaches fittings formed from composite materials. Thus, the Examiner concludes that it would have been obvious to form the pressure vessel of Guldenfels comprising the fitting form from a composite material.

Appellants argue that the subject matter of claim 4 is patentable over the combined teachings of Guldenfels and Duvall because the Examiner has failed to explain why it would have been obvious to modify Guldenfels to incorporate the features of claim 2 with the features of claim 4. (Brief, p. 10).

We fail to find Appellants' arguments persuasive. The Guldenfels reference discloses that the domed sidewall portion can be formed including a fitting for a flange connection. (See Figure 6). The Examiner relied on the Duvall reference for providing motivation to a person of ordinary skill of the art to form the end fitting of Guldenfels from composite materials. (See Duvall, column 3, line 61-64).

The Examiner rejected claims 5 and 6 under 35 U.S.C. § 103(a) as obvious over the combined teachings of Guldenfels in view of Furuichi. The Examiner asserts that it would have been obvious to add a skirt structure to the pressure vessel disclosed by Guldenfels. The Examiner asserts that Furuichi teaches that

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the skirt structure protects the pressure vessel from damage during loading and shipping. (Answer, page 5).

To hold an invention obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the specific teachings and combine them in a way that would produce the claimed invention. In the present case Furuichi is directed to a stainless steel container having rubber protectors fitted on the ends thereof. The Examiner has failed to direct us to the portions of the Furuichi reference which would have suggested the use of such rubber protectors would have been suitable for use on pressure vessels such as those disclosed by Guldenfels. The mere fact that the prior art could be modified as proposed by the Examiner is not sufficient to establish a *prima facie* case of obviousness. See In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). The Examiner must explain why the prior art would have suggested to one of ordinary skill in the art the desirability of the modification. See Fritch, 972 F.2d at 1266, 23 USPQ2d at 1783-84. The Examiner has not provided such an explanation.

The Examiner rejected the subject matter of claims 1-3, 7, 8, 20, 21, 23 and 24 under 35 U.S.C. § 102(b) as anticipated by Johnson. We reverse the Examiner's rejection.

The Examiner correctly states that Johnson discloses a pressure vessel which comprises a liner shell (72) that comprises two layers of fiber reinforced resin matrix wound around this layer. Johnson also discloses an additional layer (76) which is attached to the first layer (72) through the use of a bonding agent (80). The shell layer (76) which has been attached to the composite layer (72) is subsequently coded with a resin matrix material to form a pressure vessel comprising two chambers. (See figure 1). This structure fails to meet the presently claimed invention because the liner (76) does not comprise a composite material before bonding to the first liner (72). Thus, the completed vessel of Johnson fails to comprise a liner shell including at least two separate portions bonded together each fabricated from a composite material. The Examiner acknowledges, Answer page 11, that the plastic materials used to form the liner (72) and (76) alone do not form a composite material but requires additional materials to form the composite. Thus, the liner (76) when attached to liner (72) is not formed from a composite and therefore the Johnson reference fails to anticipate the presently claimed invention.

The Examiner rejected claims 4-6 and 8 under 35 U.S.C. § 103 over the Johnson reference combined with additional prior art references. The Examiner did not rely on these additional prior art references for describing the formation of a liner 76 from a composite material. Thus, these references fail to address the

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difference between the Johnson reference and the presently claimed invention identified above. For the foregoing reasons and those presented in the Brief, the Examiner's rejections over the Johnson reference under 102 and 103 are reversed.

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CONCLUSION

The rejection of claims 1, 19, 20 and 22-24 under 35 U.S.C. __ 102(b) over Guldenfels and the rejection of claim 4 under 35 U.S.C. __ 103(a) over Guldenfels and Duvall are affirmed.¹ The rejections of claims 1-24 over the Johnson reference under 35 U.S.C. __ 102 and/or 103 are reversed. The rejection of claims 5 and 6 over the combination of Guldenfels and the additional cited prior art references are reversed.

¹ In the event of further prosecution the Examiner should formerly reject the subject matter of claim 2 over the Guldenfels reference for the reasons expressed in the rejection of claim 4.

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

AFFIRMED IN PART

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Administrative Patent Judge)
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JEFFREY T. SMITH) BOARD OF PATENT
Administrative Patent Judge) APPEALS
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