

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEVEN L. SCHILLING,
EDWARD E. BALL, and
KEVIN J. ELSKEN

Appeal 2008-5311
Application 10/894,692
Technology Center 1700

Decided: November 12, 2008

Before CHARLES F. WARREN, TERRY J. OWENS, and THOMAS A. WALTZ, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 2, 5, 8, and 11-13, which are all of the pending claims. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

The Invention

The Appellants claim a process for making a rigid polyurethane foam.

Claim 1 is illustrative:

1. A process for preparing a rigid polyurethane foam comprising reacting:
 - a) an organic polyisocyanate with
 - b) a sorbitol-based ethylene oxide, propylene oxide containing polyether polyol having a number average molecular weight of from about 400 to about 1500, an amine-initiated polyol and a polyester polyol, in the presence of
 - c) a pentafluoropropane blowing agent, and
 - d) a catalyst.

The References

Lund	US 5,688,833	Nov. 18, 1997
Heinemann	US 6,306,920 B1	Oct. 23, 2001

The Rejections

Claims 1, 2, 5, 8, and 11-13 stand rejected under 35 U.S.C. § 103(a) over Heinemann in view of Lund.

OPINION

We affirm the Examiner's rejection.

The Appellants state that the claims stand or fall together (Br. 3). We therefore limit our discussion to one claim, i.e., claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Issue

Have the Appellants shown reversible error in the Examiner's determination that the applied references would have led one of ordinary skill in the art to combine their disclosures so as to arrive at the claimed invention?

Findings of Fact

Heinemann discloses (col. 2, ll. 8-38):

a method of producing closed cell polyurethane rigid foamed materials having a low thermal conductivity from polyols and polyisocyanates and from forming agents and optionally from foaming aids, characterised in that the polyurethane rigid foamed material is obtained by the reaction of

A. a polyol component containing

- (1) 40-80% by weight of a polyethylene oxide/propylene oxide polyether of molecular weight 300-800 which is based on sucrose or sorbitol,
- (2) 3-40% by weight of a polyethylene oxide/propylene oxide polyether of molecular weight 300-800 which is based on an aromatic mono-, di- or polyamine,
- (3) 3-40% by weight of a polyethylene oxide/propylene oxide polyether of molecular weight 200-800 which is based on an aliphatic mono-, di- or polyamine,
- (4) 3-40% by weight of a linear polyethylene oxide/propylene oxide polyether of molecular weight 500-1500,
- (5) optionally other compounds of molecular weight 150 to 12,500 g/mole which comprise at least two hydrogen atoms which are reactive towards isocyanates,
- (6) catalysts,
- (7) water,
- (8) foaming agents from the group comprising alkanes, cycloalkanes, hydrochlorofluorocarbons, hydrofluorocarbons, and
- (9) optionally adjuvant substances and/or additives with

B. a polyisocyanate which is optionally modified and which has an NCO content of 20 to 48% by weight.

Heinemann teaches that the foaming agent can be 1,1,1,3,3-pentafluoropropane (245fa) (col. 1, ll. 36-38, 60-64).

Lund discloses “azeotrope-like compositions comprising 245fa and 141b [1,1-dichloro-1-fluoroethane, col. 1, l. 27] that are useful as blowing agents for polyurethane and polyisocyanurate foams” (col. 2, ll. 10-12).

Lund discloses (col. 4, ll. 15-23):

Examples of polyols used in polyurethane modified polyisocyanurate foams include, but are not limited to, aromatic polyester polyols such as those based on complex mixtures of phthalate-type or terephthalate-type esters formed from polyols such as ethylene glycol, diethylene glycol, or propylene glycol. These polyols are used in rigid laminated boardstock, and may be blended with other types of polyols such as sucrose based polyols, and used in polyurethane foam applications.

Analysis

The Appellants argue that “the differences [between Heinemann and the Appellants’ claimed process] are much greater than Heinemann et al. merely failing to require polyester polyols” (Br. 5). The Appellants argue that “Heinemann et al. disclose a four to five constituent polyol component, at col. 2, lines 14-29, which may or may not contain sorbitol” (Br. 5), and does not teach or suggest omitting those constituents (Br. 6).

Heinemann discloses that the reaction mixture contains a polyol component constituent “based on sucrose or sorbitol” (col. 2, ll. 14-16). That constituent, when based on sorbitol, is the Appellants’ component “b”. The Appellants’ claim 1 “comprising” transition term opens that claim to

Heinemann's three to four other polyol component constituents. *See In re Baxter*, 656 F.2d 679, 686 (CCPA 1981).

The Appellants argue that "Lund et al. is directed to azeotropic mixtures of blowing agents whereas the instantly claimed invention is not" (Br. 6), and that "Lund et al. teach azeotropic mixtures of blowing agents, not individual blowing agents as instantly claimed, i.e., 'a pentafluoropropane blowing agent'" (Br. 7).

Lund is not required for a disclosure of a pentafluoropropane blowing agent because such a blowing agent is disclosed by Heinemann (col. 1, ll. 36-38, 60-64). Moreover, the Appellants' claim 1 "comprising" transition term opens the claim to other blowing agents such as the 141b component of Lund's azeotrope-like composition (col. 2, ll. 10-12). *See Baxter*, 656 F.2d at 686.

The Appellants argue that Lund's polyester polyols are but one member of a laundry list of potential components, and that Lund does not teach or suggest a preference for polyols over the other listed isocyanate reactive materials listed (Br. 6-7).

Lund discloses polyester polyols and a number of polyether polyols (col. 4, ll. 15-23; col. 3, l. 57 – col. 4, l. 14), not a laundry list of polyols as argued by the Appellants. Heinemann discloses that the polyol component can include "optionally other compounds of molecular weight 150 to 12,500 g/mole which comprise at least two hydrogen atoms which are reactive towards isocyanates" (col. 2, ll. 26-28). It is undisputed that Heinemann's optional isocyanate reactive compounds include Lund's polyester polyols. Because Heinemann's optional isocyanate-reactive

constituent is used in combination with a sucrose or sorbitol based polyol constituent for making a rigid polyurethane foam (col. 2, ll. 8-16), and Lund's polyester polyols "are used in rigid laminated boardstock, may be blended with other types of polyols such as sucrose based polyols, and used in polyurethane foam applications" (col. 4, ll. 20-23), Lund would have led one of ordinary skill in the art, through no more than ordinary creativity, to use Lund's polyester polyols as Heinemann's optional isocyanate-reactive constituent. *See KSR Int'l. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (In making an obviousness determination one "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ").

Conclusion of Law

The Appellants have not shown reversible error in the Examiner's determination that the applied references would have led one of ordinary skill in the art to combine their disclosures so as to arrive at the claimed invention.

DECISION/ORDER

The rejection of claims 1, 2, 5, 8, and 11-13 under 35 U.S.C. § 103 over Heinemann in view of Lund is affirmed.

It is ordered that the Examiner's decision is affirmed.

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

AFFIRMED

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