

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 KARL W. HAIDER, DAVID D. STEPPAN, MICHAEL E. McGREGOR,
KERRY A. INGOLD, VINCENT M. MAUTINO and MICHAEL A. DOBRANSKY

Appeal No. 2005-0528
Application No. 10/178,143

ON BRIEF

Before TIMM, JEFFREY T. SMITH, and PAWLIKOWSKI, *Administrative Patent Judges*.
TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 6-15 which are all the claims pending in the application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

According to the specification, the invention relates to polyol compositions which can be used to prepare dimensionally stable, low density water-blown rigid foams having acceptable compressive strength, foams made from the polyol compositions, and processes for preparing the foams (specification, p. 1, ll. 6-14).

According to the "Background of the Invention" section of the specification, rigid foam is produced by reacting a polyisocyanate with a polyol in the presence of a blowing agent (specification, p. 1, ll. 19-20). Typically, chlorofluorocarbons (CFCs) have been used as blowing agents, but effort has been directed to replacing CFCs with water because water is more environmentally friendly (specification, p. 1, ll. 21-28). The use of water as the blowing agent, however, has resulted in a shrinkage problem in the foam product (specification, p. 1, l. 29 to p. 2, l. 7). This shrinkage problem has been addressed in several ways, but each has deficiencies (specification, p. 2, 8-27). One approach has been to produce open-cell rigid polyurethane foams. However, unlike closed-cell water blown foams, open-cell foams are poor insulators (specification, p. 2, ll. 8-13). Appellants' foams are closed-cell foams yet are dimensionally stable, i.e., do not shrink, and have acceptable compressive strength. Claims 6 and 11 are further illustrative of the subject matter on appeal:

6. A process for preparing a low density water-blown rigid polyurethane foam comprising reacting:

- (1) a polyol composition comprising:
 - 1.) at least 30% by weight, based on the total weight of the polyol composition, of at least one aromatic amine-initiated polyether polyol; and
 - 2.) at least one of the following:
 - (I) up to 50% by weight, based on the total weight of the polyol composition of a polyether polyol having a functionality greater than or equal to 2.5 which is different from the polyether polyol of 1.);
 - and
 - (ii) up to 70% by weight, based on the total weight of the polyol composition, of a polyester polyol;

with

- (2) at least one isocyanate;

in the presence of

- (3) optionally, at least one catalyst;
- (4) water; and
- (5) optionally, at least one additive or auxiliary agent

wherein the low density water-blown rigid polyurethane foam produced has a closed cell content of at least 80%.

11. A foam produced by the process of Claim 6.

Claims 6-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S.

Patent 5,840,781 issued to Dietrich et al. on November 24, 1998 (Dietrich). Appellants state that the claims stand or fall together (Brief, p. 3). We select claim 6 to represent the issues on appeal.

We affirm for the following reasons.

OPINION

Appellants do not dispute that Dietrich suggests reacting a polyol composition meeting the requirements of claim 6 with at least one isocyanate in the presence of water as further required by claim 6. That Dietrich teaches or suggests these aspects of the claimed invention is clear from the disclosure of Dietrich. Dietrich describes a polyol composition including an aromatic amine-initiated polyether polyol (compare Dietrich, col. 1, ll. 40-43 with specification, p. 5, ll. 3-30) in an amount within the claimed range (Dietrich, col. 1, ll. 51-53) in combination with a sucrose polyether polyol (Dietrich, col. 1, ll. 54-57) which would have a functionality greater than or equal to 2.5 and, optionally, further in combination with a polyester polyol (Dietrich, col. 1, ll. 57-59). Example 1 illustrates a polyol composition containing all three polyol components in concentrations within the claimed ranges. Dietrich further describes reacting the polyol composition with polyisocyanates, optionally in the presence of water, and further blowing agents known per se as well as conventional auxiliaries and additives in order to produce rigid polyurethane foams (Dietrich, col. 2, ll. 1-8). Use of water as an additional blowing agent is also disclosed (Dietrich, col. 3, ll. 3-4).

What Dietrich does not discuss is the cell structure of the resulting foam. This is acknowledged by the Examiner (Answer, p. 4). The Examiner's conclusion of obviousness is based on the fact that Dietrich describes including foam stabilizers (Answer, p. 4). The Examiner finds that foam stabilizers were known by those of ordinary skill in the art to result in closed cells. It follows then, according to the Examiner, that it would have been obvious to one

of ordinary skill in the art to have employed the foam stabilizers described by Dietrich for their intended use, i.e., for the purpose of producing closed cells (Answer, p. 4).

Appellants argue that the Examiner has failed to point to where Dietrich provides any teaching regarding the closed cell content of their foams and that it would appear to one of ordinary skill in the art that the disclosure of Dietrich is directed to foams having a relatively high content of open cells, as foam stabilizers are taught to be optional at column 3, lines 5-7. As further stated by Appellants, “[a]s those skilled in the art are aware, foam stabilizers will prevent foam bubbles from collapsing during the hardening process and will therefore produce closed cell foams.” (Brief, p. 5). According to Appellants, because Dietrich teaches that such stabilizers are unnecessary, i.e., optional, one of ordinary skill in the art could reasonably conclude that Dietrich teaches a foam with a low closed cell content (Brief, p. 5).

The evidence as a whole supports the position of the Examiner, i.e., that one of ordinary skill in the art of preparing polyurethane foams would have found it obvious to add stabilizer to form foams with a high level of closed cells. First, the fact that those skilled in the art understood that the purpose of foam stabilizers is for the production of closed-cell foams supports the Examiner’s position rather than the Appellants’ position. One of ordinary skill in the art would have added the stabilizer, an additive explicitly suggested as useful by Dietrich, for its known and expected result. The fact that Dietrich does not mandate the inclusion of stabilizer does not translate to a teaching that the foams of Dietrich are open-cell foams. In fact, Dietrich’s only example includes stabilizer (Dietrich, Example 1 and, specifically, col. 5, ll. 38-39). This

indicates that closed-cell foams were contemplated by Dietrich. That Dietrich desired a closed-cell foam is also supported by the fact that Dietrich discloses using the foam in chilling and refrigerating units, in the building trade, and in the lagging of heating pipes (Dietrich, col. 4, ll. 12-20). These applications require the higher insulating values of closed-cell foams and, as evidenced by the statements in Appellants' "Background of the Invention," such was understood in the art (specification, p. 2, 8-11).

Appellants also fault the Examiner's finding of inherency (Brief, p. 6). The Examiner, however, indicates that the finding of inherency is directed to limitations in the dependent claims, claims not at issue in this appeal (Answer, p. 5). This argument, therefore, is not relevant.

Appellants also argue that Dietrich does not recognize the problem addressed by the invention, i.e., the problem of water-blown foam shrinkage (Brief, pp. 6-7). But a lack of discussion of Appellants' problem does not preclude a conclusion of obviousness. *In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901-1902 (Fed. Cir. 1990)(*en banc*), *cert. denied*, 500 U.S. 904 (1991). As long as there is some reason, suggestion or motivation existing within the prior art taken as a whole for making the combination, there is basis for a conclusion of obviousness. *In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992). Here, there is a suggestion for making a rigid polyurethane foam using the ingredients called for in the claim along with the stabilizer suggested by Dietrich and motivation to make the foam a

closed-cell foam in order to obtain the well known properties of that type of foam, properties which include increased insulating value.

Appellants also argue that the disclosure of Dietrich is directed to foams produced using volatile alkane and fluorinated alkane blowing agents and that water is mentioned only as an additional blowing agent (Reply Brief, p. 3). Appellants do not explain how this fact renders the claims non-obvious. If Appellants believe that the claim excludes the presence of alkane and fluoroalkane blowing agents, we cannot agree. Reading the claim as broadly as is reasonable and consistent with the specification, *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), we determine that claim 6 does not exclude the presence of blowing agents such as the alkanes and fluoroalkanes of Dietrich. The claim uses the transitional phrase “comprising” which indicates that other components can be included in the composition. Claim 6 also indicates that, optionally, at least one additive or auxiliary agent can be present (claim 6, part (5)) and that this language includes auxiliary blowing agents is evident from the specification (specification, p. 8, ll. 13-16). Nor can we say that the preamble of the claim excludes other blowing agents, particularly in view of the fact that, according to the specification, other blowing agents can be included. Based on the above claim interpretation, we cannot agree with Appellants that the disclosure in Dietrich of using water as an additional blowing agent renders the claim non-obvious.

As a final point, we note that Appellants base no arguments upon objective evidence of non-obviousness such as unexpected results. We conclude that the Examiner has established a

prima facie case of obviousness with respect to the subject matter of claims 6-15 which has not been sufficiently rebutted by Appellants.

CONCLUSION

To summarize, the decision of the Examiner to reject claims 6-15 under 35 U.S.C. § 103(a) is affirmed.

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

AFFIRMED

CATHERINE TIMM
Administrative Patent Judge

BEVERLY PAWLIKOWSKI
Administrative Patent Judge

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JEFFREY T. SMITH, Administrative Patent Judge, *concurring*

I concur with the majority's disposition of the Examiner's stated § 103 rejection of the appealed claims before us. I write separately because it is my opinion that the rejection of claims 6-15 under 35 U.S.C. § 103(a) over Dietrich, U.S. Patent 5,840,781, should be affirmed for reasons that differ from the majority.

I agree with the cogent analysis of my colleagues that it would have been obvious to add a stabilizer to the process of Dietrich. However, I do not believe that the addition of a stabilizer is necessary to render the claimed subject matter unpatentable. I will limit my discussion to claim 6.¹

The subject matter of claim 6 is directed to a process for preparing a low density water-blown rigid polyurethane foam. Claim 6 is reproduced below:

6. A process for preparing a low density water-blown rigid polyurethane foam comprising reacting:
- (1) a polyol composition comprising:
 - 1.) at least 30% by weight, based on the total weight of the polyol composition, of at least one aromatic amine-initiated polyether polyol; and
 - 2.) at least one of the following:
 - (I) up to 50% by weight, based on the total weight of the polyol composition of a polyether polyol having a functionality greater than or equal to 2.5 which is different from the polyether polyol of 1.);
 - and
 - (ii) up to 70% by weight, based on the total weight of the polyol composition, of a polyester polyol;

¹ Claim 6 has been selected by the majority as representative of the rejected claims. (Slip op. p. 3).

with

- (2) at least one isocyanate;
- in the presence of
- (3) optionally, at least one catalyst;
 - (4) water; and
 - (5) optionally, at least one additive or auxiliary agent
- wherein the low density water-blown rigid polyurethane foam produced has a closed cell content of at least 80%.

According to the Examiner, Answer pages 3 and 4, Dietrich discloses a process for preparing low density water-blown rigid polyurethane foam which renders obvious the use of all of the components specified by the subject matter of claim 6. The Examiner asserts that Dietrich differs from the claimed invention in that the low density water-blown rigid polyurethane foam produced is not described as having a closed cell content of at least 80%. (Answer, p. 4).

The evidence cited by the Examiner supports the position that a person of ordinary skill in the art performing the process of Dietrich, employing the components described by the examiner, to produce a rigid polyurethane foam would have been practicing the claimed invention including having a closed cell content of at least 80%. *Mehl/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1366, 52 USPQ2d 1303, 1307 (Fed. Cir. 1999) (“Where, as here, the result is a necessary consequence of what was deliberately intended, it is of no import that the article's authors did not appreciate the results.”); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Appellants have not identified where in the present record there is evidence that the claimed process requires additional unnamed components to produce a polyurethane foam having a closed cell content of at least 80%.

Appellants argue that the claimed invention is distinguishable from Dietrich in that the reference does not disclose the closed cell content. In support of this position Appellants argue “[a]s those skilled in the art are aware, foam stabilizers will prevent foam bubbles from collapsing during the hardening process and will therefore produce closed cell foams. Dietrich et al. teach that such stabilizers are unnecessary (i.e. optional) and therefore one of ordinary skill in the art could reasonably conclude that Dietrich et al. teach a foam with a low closed cell content.” (Brief, p. 5).

The present record does not support Appellants’ argument. Appellants have not identified how the components contained in Dietrich’s process differs from the components specified in the subject matter of claim 6. On the present record, the Examiner has found that Dietrich teaches the same components which are combined (reacted) in the same manner as Appellants have done. Accordingly, the Examiner has met the initial burden of establishing a *prima facie* case of unpatentability under section 103. Therefore, the burden has been shifted to Appellants to show that the claimed product produced differs substantially from the product disclosed by Dietrich. See *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990); and *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977). Appellants have not submitted any evidence that the product of Dietrich is substantially different than the product resulting from the claimed process. It appears that Appellants are inferring that the subject matter of claim 6 requires the presence of an additional component, i.e., stabilizer, to

produce a polyurethane foam having a closed cell content of at least 80%. However, Appellants have not identified a particular amount or type of stabilizer required to produce this effect.

In conclusion, I agree with my colleagues that the rejection of claims 6-15 under 35 U.S.C. § 103(a) over Dietrich is affirmed.

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