

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TODD L. DEPUE

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Appeal 2008-2112  
Application 10/708,312  
Technology Center 1700

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Decided: June 2, 2008

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Before EDWARD C. KIMLIN, THOMAS A. WALTZ, and ROMULO H. DELMENDO, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 5 and 7-9. (Final Office Action entered March 23, 2007). Claims 1-4, the only other pending claims, have been withdrawn from consideration. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellant's invention relates to a method of forming trim assemblies for automotive interiors using a two-shot molding operation. In this operation, "[a] first material is injected into a mold during the first shot to form the substrate member," and "[s]econd and third materials are co-injected during the second shot to form [a] cover member" on the substrate. (Spec. ¶ 0006). The co-injected second and third materials form an outer pliable layer and an inner compressible layer, respectively.

Representative claim 5 reads as follows:

5. A method of forming an automotive interior trim assembly in a two-shot molding operation, the method comprising:

forming a substrate member defining one of an automotive instrument panel, an interior door trim panel, an armrest, or a console by injecting a first material during the first shot of the molding operation;

co-injecting second and third materials onto the substrate member to form a cover member on the substrate member during the second shot of the molding operation, wherein the second material is an outer pliable layer and the third material is an inner compressible layer; and

covering the inner compressible layer with the outer pliable layer during the co-injecting step.

The prior art references relied upon by the Examiner to reject the claims on appeal are:

Bertschi	5,651,998	Jun. 29, 1997
Thomson	6,627,134 B2	Sep. 30, 2003
Schoemann	2004/0017023 A1	Jan. 29, 2004
Dry	6,899,363 B2	May 31, 2005

The following rejections are before us for review:

Claims 5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoemann in view of Thomson.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoemann in view of Thomson, and further in view of Dry.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bertschi in view of Thomson and further in view of Dry.

### ISSUES

Has Appellant shown reversible error in the Examiner's determination that the subject matter of claims 5, 7, and 8 would have been obvious to one of ordinary skill in the art over Schoemann and Thomson, or that the subject matter of claim 9 would have been obvious over Schoemann, Thomson, and Dry?

Has Appellant shown the Examiner reversibly erred in determining claim 5 would have been obvious to one of ordinary skill in the art over the teachings of Bertschi, Thomson, and Dry?

### FINDINGS OF FACT

1. Schoemann describes forming an automotive trim component by performing manufacturing steps of molding a first material substrate and overmolding a second material accent region 18 onto the substrate, where "the first material 46 is preferably a harder material, such as polypropylene, and the second material 50 is a softer material, such as TPU [thermoplastic polyurethane] or thermoplastic elastomer (TPE)." (¶ 0034; Figs. 5, 6).

2. Schoemann discloses a manufacturing step of applying a third material of vinyl to cover portions of a two material trim panel. (¶ 0028).
3. Covering portions of the two material trim panel with a third material, as disclosed by Schoemann, would necessarily teach covering the first material substrate or the second material accent region which is overmolded onto the first material substrate. Covering the second material accent region would necessarily result in a three material structure including cover layer and accent region on the substrate.
4. Thomson discusses a method of co-injecting two materials to form an outer pliable thermoplastic elastomer layer and an inner compressible foam layer. (Col. 2, l. 56 – col. 3, l. 6; col. 11, ll. 42-49, Example 4).
5. Thomson states that particular advantages of co-injecting two materials to form an inner compressible layer and outer pliable layer (i.e., “sandwich” construction) include “mak[ing] a part with a chemically foamed core, gaining the light weight, low pressure, and flat surfaces of a foam part without the characteristic streaky exterior,” and cost savings by “us[ing a] low cost recycled, ‘off-spec’ or uncolored material where it is not visible . . . and to make a part with different properties on the inside and outside.” (Col. 1, ll. 35-43).
6. Dry discloses that it is known to make “interior vehicle door panels [with] localized cushioned areas in the armrest. Such localized softness may be provided by a flexible foam or elastomeric pad of varying thickness typically mounted to a rigid structural substrate and surrounded by a relatively harder durometer cover sheet.” (Col. 1, ll. 13-19).

7. Dry asserts that “a series of multiple and separate molding and assembly steps . . . add significant cost to each part produced.” (Col. 1, ll. 25-27).
8. Bertschi discloses a method of injection molding multilayered articles using co-injection and single injection, using “[a]ny combination of one material, two material or more than two material nozzles . . . to satisfy the manufacturing of the type of articles desired.” (Col. 7, ll. 34-36).
9. Bertschi states that “injections can be sequential or simultaneous, the nozzles can be of any configuration, for example, opposed or offset, the injections can be independently and precisely metered, timed, or otherwise effected, and mold movements can take place between or during the injections.” (Col. 7, ll. 57-61).

#### PRINCIPLES OF LAW

“A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.” 35 U.S.C. § 103(a) (2000).

“‘Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.’” *KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1734 (2007) (quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966)).

## ANALYSIS

*The Rejections of Claims 5, 7, and 8 in View of Schoemann and Thomson, and The Rejection of Claim 9 in View of Schoemann, Thomson, and Dry.*

Appellant groups' claims 5 and 7-9 together, submitting specific arguments directed to claim 5, and does not argue the separate patentability of claims 7, 8, and 9 apart from claim 5. (App. Br. 7-8; Reply Br. 3-4). Accordingly, we select claim 5 as representative and confine our discussion to this claim. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Appellant's main argument is that Schoemann fails to disclose every required element of claim 5, and that Thomson does not cure this failing. Specifically, Appellant contends that since "Schoemann '023 is directed to a method of forming vehicle trim panels using two materials," and "Thomson '134 is also directed to an apparatus for simultaneously injecting two materials to form a multi-layered article," the prior art does not "disclose[] forming an automotive interior trim assembly using three materials, as set forth in claim 5." (App. Br. 7, ll. 13-19). We must disagree with Appellant.

Significantly, Schoemann does disclose applying a third material to cover portions of a two material trim panel. (FF 2, 3). In the disclosed method, Schoemann describes forming an automotive trim component by molding a first material substrate and overmolding a second material accent region 18 onto the substrate, where "the first material 46 is preferably a harder material, such as polypropylene, and the second material 50 is a softer material, such as TPU [thermoplastic polyurethane] or thermoplastic elastomer (TPE)." (FF 1; Figs. 5, 6). In a subsequent manufacturing step, a third material of vinyl can be used to cover portions of the two material trim

panel. (FF 2). Thus, the prior art teaches a three material structure, with second and third materials layers on a first material substrate. (FF 3).

As acknowledged by the Examiner, Schoemann does not disclose co-injecting the second and third materials as a cover member onto the substrate where the second material is an outer pliable thermoplastic elastomer layer and the third material is an inner compressible layer. (Ans. 5, ll. 17-21). However, Thomson teaches a method of co-injecting two materials to form an outer pliable thermoplastic elastomer layer and an inner compressible foam layer. (FF 4). Thomson further states that particular advantages achieved by co-injecting two materials to form an inner compressible layer and outer pliable layer (i.e., “sandwich” construction) include “mak[ing] a part with a chemically foamed core, gaining the light weight, low pressure, and flat surfaces of a foam part without the characteristic streaky exterior,” and cost savings by “us[ing a] low cost recycled, ‘off-spec’ or uncolored material where it is not visible . . . and to make a part with different properties on the inside and outside.” (FF 5).

These findings support the Examiner’s conclusion of obviousness because the prior art combination would have suggested to one of ordinary skill in the art the consolidation of steps in a method of forming an automotive trim. That is, a person having ordinary skill in the art would have been led to consolidate the two step application of inner compressible second material and outer pliable third material following Thomson’s teaching of co-injection of two materials, with no change in the respective outcome of the two layers made of a compressible inner layer and outer pliable layer. *KSR*, 127 S. Ct. at 1739 (“The combination of familiar

elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

For these reasons, Appellant’s arguments are unpersuasive to show that the Examiner reversibly erred in determining the subject matter of claim 5 obvious in view of the prior art.

*The Rejection of Claim 5 in View of Dry, Bertschi, and Thomson.*

The issue here is whether Applicant has shown that the Examiner reversibly erred in determining that it would have been obvious for one of ordinary skill in the art to combine the teachings of Dry, Bertschi, and Thomson to arrive at the claimed subject matter of claim 5. Appellant’s arguments fail to show reversible error.

Dry discloses that it is known to make “interior vehicle door panels [with] localized cushioned areas in the armrest. Such localized softness may be provided by a flexible foam or elastomeric pad of varying thickness typically mounted to a rigid structural substrate and surrounded by a relatively harder durometer cover sheet.” (FF 6). Thus, a three material, three layered, armrest structure is known in the prior art, where a compressible layer covered by a sheet together form a cover member on a rigid substrate.

Next, we look to whether the prior art teaches a method of forming these known structures within the scope of the claimed molding method. Bertschi discloses a method of injection molding multilayered articles using co-injection and single injection, using “[a]ny combination of one material, two material or more than two material nozzles . . . to satisfy the manufacturing of the type of articles desired.” (FF 8). Furthermore,

Bertschi states that “injections can be sequential or simultaneous, the nozzles can be of any configuration, for example, opposed or offset, the injections can be independently and precisely metered, timed, or otherwise effected, and mold movements can take place between or during the injections.” (FF 9). Additionally, Thomson teaches that there are advantages to co-inject two material layers as a pliable outer layer and an inner compressible foam layer. (FF 5). Finally, Dry states that “a series of multiple and separate molding and assembly steps . . . add significant cost to each part produced.” (FF 7).

In light of these findings, it would have been obvious to one of ordinary skill in the art to combine the teachings of Dry, Bertschi, and Thomson to obtain an efficient manufacturing process by decreasing the number of molding and assembly steps in forming an automotive cushioned armrest interior trim assembly in a two-shot molding operation. Selecting from several injection combinations, as taught by Bertschi, in view of the co-injection step disclosed by Thomson to achieve a second outer pliable material and third inner compressible material to form a known automotive interior trim assembly efficiently by reducing molding and assembly steps, thereby saving costs, would have been obvious to one of ordinary skill in the art. *In re Clinton*, 527 F.2d 1226, 1229 (CCPA 1976) (“Economics alone would motivate a person of ordinary skill in the art . . .”).

Appellant argues that Dry is directed to making articles using only two materials (App. Br. 6, ll. 10-12), and that “Bertschi ‘998 still only discloses the injection of second and third materials 444, 492 into the center of a first material 490,” and therefore “does not disclose ‘co-injecting second and third materials onto the substrate member to form a cover member on the substrate,” where “the second material is an outer pliable layer and the

third material is an inner compressible layer.” (Reply Br. 2, ll. 6-13). Also, Appellant argues “there is no combination of injections of the materials of Bertschi ‘998 that would result in the claimed invention” (Reply Br. 2, ll. 15-16).

Appellant’s arguments are unpersuasive to show the Examiner erred in determining the claimed method obvious. Bertschi discloses a molding process using combinations of one material and two material nozzles (FF 8), together with sequential or simultaneous injections that are precisely metered and timed. (FF 9). One of ordinary skill in the art would have known that precise metering allows, as a first injection step, introducing less first material than required to cover the mold surface, resulting in a first material substrate only on a portion of the mold surface. Then, in a later step, co-injection of the second and third materials applies a cover member onto the first material substrate as well as on the remaining mold surface. Thus, by using a combination of injections, as taught by Bertschi, with the “sandwich” construction disclosed by Thomson, one of ordinary skill in the art would have successfully made the known three material armrest structure discussed by Dry.

Accordingly, Appellant has failed to show that the Examiner reversibly erred in determining claim 5 would have been obvious to one of ordinary skill in the art over the teachings of the prior art.

#### CONCLUSION OF LAW

On this appeal record, Applicant has failed to show that the Examiner erred in concluding that one of ordinary skill in the art would have found the subject matter of the appealed claims obvious over the prior art.

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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).

AFFIRMED

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