

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HANS SJOLIN & KENT LINDGREN

Appeal 2008-3016
Application 10/239,921
Technology Center 1700

Decided: June 30, 2008

Before BRADLEY R. GARRIS, CHUNG K. PAK, and PETER KRATZ,
Administrative Patent Judges.

PAK, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's refusal to allow claims 2 through 7, 9, 11 through 16, 18 through 26, and 28 through 34. Claims 8, 17, 27, and 35, the other pending claims in the above-identified application, stand withdrawn from consideration by the Examiner as being directed to a non-elected invention. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM.

STATEMENT OF THE CASE

The subject matter on appeal relates to a decorative, abrasion resistant flooring laminate (Spec. 1-7). This laminate is formed by pressing a paper sheet or web coated with a thermosetting resin and an ionomer transparent thermoplastic layer or foil, with or without a particle or fiber board (Spec. 2-3). Further details of the appealed subject matter are recited in representative claims 13, 15, 16, 18, and 19 reproduced below:

13. Process according to claim 19, wherein the ionomeric thermoplastic consists of an ethylene-methacrylic acid copolymer, whereby the ions consists of sodium, zinc or lithium.

15. A decorative, abrasion resistant flooring laminate having a distinct surface décor, which laminate comprises a décor sheet of paper impregnated with a thermosetting resin and optionally a base layer, wherein the laminate has an abrasion resistant surface layer comprising a layer of ionomer thermoplastic produced by the process according to claim 19,

16. Flooring laminate according to claim 15, wherein the ionomeric thermoplastic consists of ethylene-methacrylic acid copolymer whereby the ions for instance consist of sodium, zinc or lithium.

18. Laminate according to claim 15, wherein the base layer comprises fiber board, particle board or plastic sheet.

19. Process for the production of blister-free abrasion resistant decorative flooring laminate having a distinct décor, which laminate comprises at least one paper sheet or paper web impregnated with a thermosetting resin, wherein the paper sheet or paper web is impregnated with a thermosetting resin and then dried, is provided on an upper side at an increased temperature and under increased pressure, either continuously or discontinuously, with a transparent surface layer consisting of a foil of an ionomer thermoplastic, whereby the increased temperature and pressure is sufficient to melt the thermoplastic and get a strong adhesion to the paper

underneath containing thermosetting resin, and that the laminate thus obtained is cooled under continuous pressure, whereby transparent thermoplastic layer of such a sheet or web formed laminate is present in the abrasive resistant surface layer of the flooring laminate.

As evidence of unpatentability of the appealed subject matter, the Examiner has proffered the following prior art references:

| | | |
|---------------------|--------------|---------------|
| Fuerst | US 3,373,070 | Mar. 12, 1968 |
| Scher | US 3,732,137 | May 8, 1973 |
| Moebes ¹ | DE 133921 | Jan. 31, 1979 |
| Kiriazis | US 5,654,091 | Aug. 5, 1997 |

Appellants' admission at pages 3 and 4 of the Specification (hereinafter referred to as "the admitted prior art").

The Examiner has rejected the claims on appeal based on the above proffered evidence as follows:

- 1) Claims 2 through 7, 9 through 13, 15, 16, 18 through 26, 28, and 31 through 34 under 35 U.S.C. § 103(a) as unpatentable over the disclosures of Kiriazis, Fuerst, and Moebes;
- 2) Claim 14 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kiriazis, Fuerst, Moebes, and Scher; and
- 3) Claims 29, and 30 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kiriazis, Fuerst, Moebes, and the admitted prior art.

Appellants appeal from the Examiner's decision rejecting the claims on appeal under 35 U.S.C. § 103(a).

¹ Our reference to this published foreign patent application is to the English translation of record (translated by The McElroy Translation Company on behalf of the United States Patent Trademark Office). The Answer inadvertently refers to it as "DD 133921" issued to "Gruenberg et al".

*RELEVANT FACTUAL FINDINGS, PRINCIPLES OF LAW,
ISSUES, AND ANALYSES*

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). “[A]nalysis [of whether the subject matter of a claim would have been obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co., v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740-41 (2007); *see also DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006).

1. Claims 2 through 7, 9 through 13, 15, 16, 18 through 26, 28, and 31 through 34 under 35 U.S.C. §103 as unpatentable over the combined disclosures of Kiriazis, Fuerst and Moebes²

As correctly found by the Examiner, Kiriazis teaches a process for forming a decorative, scratch-resistant laminate comprising (A) a substrate, such as chipboards or hard boards, (B) a thermoplastic film, (C) a paper layer and (D) a surface-finish coating. *Compare Ans. 3-6 with Kiriazis, col. 1, l. 5*

² Appellants argue the limitations recited in claims 19, 13, 15, 16, and 18 (App. Br. 2-7 and Reply Br. 1-7). Therefore, for purposes of this appeal, we decide the propriety of the Examiner’s rejection based on these claims alone consistent with 37 C.F.R. § 41.37(c)(1)(vii) (2005).

to col. 2, l. 20. The Examiner has also correctly found that Kiriazis' process involves, *inter alia*, providing a paper layer (a paper sheet or web preimpregnated or impregnated with a thermosetting resin), and applying a surface-finish layer, such as a thermoplastic mono-films or thermoplastic coextruded films made of, among others, ionomeric thermoplastic resins, including Surlyn (the commercially available transparent ionomeric thermoplastic preferred by Appellants at pages 4-7 of the Specification) to the preimpregnated paper sheet (*Compare* Ans. 3-6 with Kiriazis, col. 5, l. 31 to col. 6, l. 24). The Examiner has further correctly found that Kiriazis teaches pressing the paper sheet preimpregnated or impregnated with a thermosetting resin, the claimed Surlyn surface-finish layer (with or without an adhesion-promoter), and a thermoplastic film with or without a chipboard for a period of 5 to 30 seconds at a temperature of 120 °C to 180 °C and a pressure of 5 to 20kp/cm² to obtain a laminate (*Compare* Ans. 3-6 with Kiriazis, col. 6, l. 43 to col. 7, l. 15), Indeed, Kiriazis exemplifies pressing them for a thirty (30) second at a temperature of 150 °C and a pressure of 20 kp/cm² corresponding to the pressing conditions disclosed at page 3 of Appellants' Specification to form a decorative abrasion resistant laminate (*Compare* Kiriazis, col. 7, ll. 39-49, Example 1, with Appellants' own Spec. 3).

Appellants contend that the prior art applied would not have led one of ordinary skill in the art to (1) dry the paper sheet impregnated or preimpregnated with a thermosetting resin; (2) employ press temperature and pressure sufficient to melt an ionomeric thermoplastic layer and (3) cool the resulting laminate under continuous pressure (App. Br. 2-7 and Reply Br. 1-7).

The dispositive question is, therefore, whether Appellants have shown reversible error in the Examiner’s factual findings that the prior art applied would have taught and/or suggested (1) drying the paper sheet impregnated with a thermosetting resin, (2) employing press temperatures and pressures sufficient to melt an ionomeric thermoplastic layer, such as Surlyn, and (3) cooling the resulting laminate under continuous pressure within the meaning of 35 U.S.C. § 103. We address the issues raised by Appellants in seriatim.

As to drying the paper impregnated with a thermosetting resin, we find no reversible error in the Examiner’s finding. Although Kiriazis does not explicitly mention that its paper sheets preimpregnated or impregnated with a thermosetting resin are dried, Kiriazis teaches that such resin impregnated sheets “are strengthened therewith so that they do not split open on cutting, drilling and milling” (col. 5, ll. 31-41). Implicit in this teaching is that the resin impregnated paper sheets are dried as the wet paper sheets would not be expected to exhibit such high strength properties. *In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”). Indeed, Fuerst explains that the paper sheets impregnated with a thermosetting resin, such as those taught by Kiriazis, are normally dried to provide abrasion or wear resistance (col. 1, ll. 8-43 and col. 3, ll. 15-25). Thus, we determine that Kiriazis alone, or as explained by Fuerst, would have taught or suggested to one of ordinary skill in the art to dry the thermosetting resin preimpregnated or impregnated paper sheets taught by Kiriazis.

As to the employment of press temperatures and pressures sufficient to melt the ionomeric thermoplastic layer, we again find no reversible error in the Examiner's finding that Kiriazis teaches such press temperatures and pressures. As indicated *supra*, Kiriazis teaches pressing the thermosetting resin coated paper sheet, the claimed Surlyn surface-finish layer (with or without an adhesion-promoter), and the thermoplastic film, with or without a chipboard, for a period of 5 to 30 seconds (exemplified 30 seconds) at a temperature of 120 °C to 180 °C (exemplified 150 °C) and a pressure of 5 to 20kp/cm² (exemplified 20kp/cm²) to obtain a laminate (*See also* Kiriazis, col. 6, l. 43 to col. 7, l. 15 and col. 7, Examples 1 and 2). The temperature and pressure conditions taught by Kiriazis are well within those disclosed and claimed by Appellants (*Compare* Kiriazis, col. 6, l. 43 to col. 7, l. 15 and col. 7, Examples 1 and 2, *with* Appellants' own Spec. 3).

As to cooling the laminate under continuous pressure, we again find no reversible error in the Examiner's determination that the prior art references as a whole would have suggested employing such a step in the lamination process of Kiriazis. This suggestion is readily apparent from Kiriazis alone since the pressure referred to in claim 19 includes atmospheric pressure, e.g. 1 bar (*see* Appellants' dependent claim 11).

Even were we to assume that the claimed continuous pressure is greater than atmospheric pressure, the outcome would not be altered. We find Fuerst and Moebes teach that it is conventional to heat press, *inter alia*, a base layer and a thermosetting resin impregnated paper sheet and cool them while being pressed (under continuous pressure) to form a decorative laminate (Fuerst, col. 4, ll. 39-48 and Moebes, pp. 1-4). According to Fuerst and

Moebes, their heat press is carried out at 130 °C to 170 °C which are within those taught by Kiriazis (Furest, col. 4, ll. 39-48 and Moebes, p. 2). The resulting laminate is subsequently cooled under continuous high pressure to below 40 °C (Furest, col. 4, ll. 39-48 and Moebes, p. 2). We find that Moebes further teaches (pp. 2 and 4) that in forming various conventional laminates:

- For the entire duration of the [pressing] cycle, the compressed material is held under high pressure,
- to cause the resin to flow [i.e., implies the melting of a thermoplastic resin]
 - to suppress bubble formation due to evaporating cleavage products
 - during the cooling, to compensate for internal tensions, and to oppose curvatures of the board

Given the conventional usage of cool press (after heat press) in forming laminates in general, we concur with the Examiner that one of ordinary skill in the art would have been led to cool the heat pressed laminate taught by Kiriazis under continuous high pressure (while being pressed), with a reasonable expectation of successfully forming an abrasion resistant decorative laminate. *KSR Int'l Co., v. Teleflex, Inc.*, 127 S. Ct. at 1740 (*quoting Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)) (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.”).

In reaching this determination, we note Appellants’ argument that Fuerst and Moebes are directed to cooling a laminate comprising a paper sheet or web impregnated with a thermoset resin under continuous pressure. It appears to be Appellants’ position that the cold pressing taught by Furest and

Moebes is only useful for a laminate comprising a paper sheet or web impregnated with a thermoset resin. We also note that the laminate taught by Kiriazis also contains a paper sheet impregnated with a thermoset resin as indicated *supra*.

Appellants separately argue the limitations recited in claims 13 and 16 (App. Br. 6). According to Appellants (*id*), “the Examiner has not even attempted to address such limitations by merely citing a brand name “Surlyn” found in Kiriazis et al at col. 6, line 23.” However, Appellants’ own Specification indicates that the ionomeric thermoplastics recited in claims 13 and 16 include “Surlyn” (Spec. 4).

Appellants also separately argue the limitations recited in product-by-process claims 15, 16, and 18 (App. Br. 6-7). According to Appellants (*id*), the applied prior art references do not teach or suggest “a wear layer where the transparent ionomeric thermoplastic layer is present in an abrasion resistant surface layer of the laminate.” This argument is not persuasive since the limitation argued is not present in claims 15, 16, and 18. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). To the extent that such wear layer is required in the claimed laminate, we determine that Kiriazis, Furest and Moebes would have suggested forming such laminate, the laminate formed by the claimed process as indicated *supra*.

Accordingly, based on the reasons set forth in the Answer and above, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claims 2 through 7, 9 through 13, 15, 16, 18 through 26, 28, and 31 through 34 within the meaning of 35 U.S.C. § 103(a).

2. *Claim 14 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kiriazis, Fuerst, Moebes, and Scher*

Appellants do not challenge the Examiner’s determination that it would have been obvious to employ a release foil on top of the ionomeric thermoplastic foil to prevent the thermoplastic from sticking to the press, as suggested by Scher, in the laminating process suggested by Kiriazis, Fuerst and Moebes (*Compare Ans. 6, with App. Br. 7 and Reply Br. 1-7*).

Appellants only argue that “Scher et al. fails to cure the deficiencies of Kiriazis et al., DD ‘921 [Moebes] and Fuerst, as discussed above” (App. Br. 7 and Reply Br. 1-7)). Accordingly, based on the reasons set forth in the Answer and above, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claim 14 within the meaning of 35 U.S.C. § 103(a).

3. *Claims 29 and 30 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kiriazis, Fuerst, Moebes, and the admitted prior art*

Appellants do not challenge the Examiner’s determination that it would have been obvious to one of ordinary skill in the art to employ the admittedly known continuous or discontinuous pressing system and its concomitant optimum pressure condition, such as that claimed, in the laminating process suggested by Kiriazis, Fuerst and Moebes (*Compare Ans. 6-7, with App. Br. 7 and Reply Br. 1-7*). Appellants only argue that “the alleged admitted prior art fails to cure the deficiencies of Kiriazis et al., DD ‘921 [Moebes] and Fuerst...” (App. Br. 7 and Reply Br. 1-7). Accordingly, based on the reasons set forth in the Answer and above, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the

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subject matter recited in claims 29 and 30 within the meaning of 35 U.S.C. § 103(a).

ORDER

The decision of the Examiner is affirmed.

TIME PERIOD

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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