

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALAN B. CAMPBELL,
ANDREW MCKEE, SANFORD COBB, JR. and
WADE D. KRETMAN

Appeal 2008-1289
Application 09/962,039
Technology Center 1700

Decided: May 23, 2008

Before THOMAS A. WALTZ, ROMULO H. DELMENDO, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 35-52 and 69-74. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).¹

¹ A hearing was held in this Appeal on April 9, 2008.

We AFFIRM.

INTRODUCTION

Appellants claim a method of making an optical film comprising, in relevant part, forming an anti-wet-out surface lacking regular structure on a first surface of the optical film by pressing a shaped tool against the first surface (claim 35). “Wet-out” occurs when two surfaces optically contact each other, thus effectively removing the change in refractive index for light propagating from one film to the next (Spec. 1). “Wet-out” creates a mottled and varying appearance on the optical device (Spec. 1).

Claim 35 is illustrative:

35. A method of making an optical film, comprising:
forming an anti-wet-out surface lacking regular structure on a first surface of the optical film by pressing a shaped tool against the first surface, the first surface being free of regular structure and flat except for anti-wet-out features of the anti-wet-out surface, the optical film being one of a brightness enhancing film, a lenticular film, a Fresnel lens film, an internally reflecting redirecting film, a bulk diffusing film, a retardation film, a polarizer film.

The Examiner relies on the following prior art references as evidence of unpatentability:

Endo	4,925,725	May 15, 1990
Hopfe	5,425,977	Jun. 20, 1995
Wortman	5,771,328	Jun. 23, 1998
Kashima	5,995,288	Nov. 30, 1999

The rejection as presented by the Examiner is as follows:

1. Claims 35-52 and 69-74 are rejected under 35 U.S.C. § 103 as being unpatentable over Wortman in view of Kashima, and further in view of Endo or Hopfe.

The Examiner finds that Wortman discloses all the features of claim 35, except for the anti-wet-out surface lacking regular structure made by pressing the surface against a shaping tool claim feature (Ans. 3 and 4). The Examiner finds that Kashima discloses that using a coating with beads that form a random pattern on a flat surface of the optical sheet adjacent another layer in an optical device, prevents interference fringes and Newton's rings (Ans. 4). The Examiner finds that "Kashima . . . teaches one of ordinary skill in the art that a film lacking regular structure would in fact be an anti-wet-out film, since an anti-wet-out film is designed to eliminate or prevent interference fringes (e.g., Moire patterns) and Newton's rings when two films are placed adjacent one another" (Ans. 4).

The Examiner further finds that Endo and Hopfe disclose forming irregularly structured interlayer's between glass panes, the irregular structure being formed by shaped tool pressing (Ans. 4). The Examiner finds that Hopfe discloses Moire patterns are eliminated by using an irregular surface (Ans. 5). The Examiner finds that Hopfe's extrusion to form the irregular surface is shaped tool pressing (Ans. 4). The Examiner finds that Endo discloses the equivalency of extrusion, embossing, and mechanical etching to form irregular surfaces on interlayer's (Ans. 4 and 5).

Based on these findings, the Examiner concludes that it would have been obvious to modify Wortman's method of making a light directing film in view of Kashima's disclosure that roughened surfaces suppress Moire

pattern formation, and Endo's embossing to form an irregular roughened surface or Hopfe's disclosure to form an extruded irregular surface in order to make a film with improved anti-wet-out properties that would have reduced Moire pattern interference (Ans. 5 and 6).

Appellants separately argue independent claims 35 and 41. The same claim feature is argued with respect to each of the independent claims.² Accordingly, we treat the § 103 rejection with regard to claims 35 and 41.

OPINION

Appellants argue that there is no motivation to combine Hopfe with Wortman because Hopfe discloses extrusion, not embossing, to form an irregular pattern (Br. 6). Appellants further contend that Endo fails to provide any suggestion that an irregular surface may reduce wet-out or Moire patterns because Endo seeks a complete wet-out between the interlayer and the glass panes (i.e., complete optical contact) (Br. 7). Appellants argue that the combination of references is based on impermissible hindsight (Br. 7). Appellants contend that none of the references teach or suggest formation of an anti-wet-out surface (i.e., a

² Regarding claim 41, Appellants argued at the Oral Hearing that Wortman does not disclose the claim feature, "the first surface has a plurality of local height maxima having a final height of up to around 5 µm above local minima" (Oral Transcript 9 and 10). However, that feature was not argued in the Brief and was raised for the first time at oral argument. Pursuant to 37 C.F.R. § 41.47(e)(1), Appellants may only present argument relied on in the Brief or Reply Brief, except as permitted by § 41.47(e)(2). Because Appellants have not shown good cause why or how the argument is based upon a relevant decision of either the Board or a Federal Court (37 C.F.R. § 41.47(e)(2)), we decline to consider the argument.

pattern lacking regular structure in claim 41) on a surface otherwise lacking regular structure (i.e., a flat surface) using a shaping tool as claims 35 and 41 require (Br. 8). Appellants argue that Hopfe and Endo are non-analogous art in that the windshields of Hopfe and Endo are in a different field of endeavor than the claimed invention and not reasonably pertinent to the problem to be solved (Br. 9 and 10). Appellants also argue that because their method retains the optical function of the optical sheet, while the manufacturing process is simplified when compared to Kashima's coating method, this achievement is an indicia of nonobviousness (Br. 10).

We have considered all of Appellants' arguments and are unpersuaded for the reasons below.

Wortman discloses light directing films having a variable height structured surface (Wortman, col. 1, ll. 9-12). Wortman forms a regular, repeating pattern of prism zones having differing heights (Wortman, col. 2, ll. 10-20). Wortman further discloses that the repeating prism zone structure prevents the occurrence of visible optical coupling (i.e., wet-out) when a second sheet of light directing film is placed closely adjacent the films structured surface (Wortman, col. 2, ll. 24-29; col. 4, ll. 40-52; col. 8, ll. 54-67; col. 9, ll. 1-3). The prism zones may be manufactured by embossing (Wortman, col. 6, ll. 55-61).

Kashima discloses an optical sheet and an optical sheet lamination composed of a prism sheet, a lens sheet and/or an optical diffusing sheet suitable for use in a back-light surface light source (Kashima, col. 1, ll. 8-18). Kashima discloses that interference fringes form between the flat surface of one prism sheet and the flat surface of another prism sheet (Kashima, col. 2, ll. 35-40). Kashima suppresses interference fringe

patterns or Newton's rings by using a coating with beads that provide knoll-shaped projections randomly along the surface of the coating layer (Kashima, col. 3, ll. 5-33; col. 9, ll. 10-23).

Hopfe discloses a thermoplastic interlayer having rough surfaces for optimum deairing in a prelaminate with glass (Hopfe, col. 1, ll. 9-12). Hopfe further discloses that the interlayer has a first surface that has a regular pattern of integrally projecting embossments, and a second surface having an irregular, non-linear pattern of microscopic peaks and valleys (Hopfe, col. 1, ll. 57-67). Hopfe discloses that the irregular pattern on the second surface may be formed by conventional techniques, usually by extrusion (Hopfe, col. 5, ll. 19-33). Hopfe discloses that interlayer's manufactured having the regularly patterned first surface and an irregularly patterned second surface do not create Moire patterns (Hopfe, col. 8, ll. 10-18; Figure 4).

Endo discloses an interlayer for laminated glass (Endo, col. 1, ll. 6-8). Endo discloses forming irregularly arranged coarse raised and depressed portions on one or both surfaces of the interlayer (Endo, col. 1, ll. 17-21; col. 2, ll. 27-30). Endo embosses or extrudes to form the irregularly arranged pattern (Endo, col. 3, ll. 61-65).

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). The test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Contrary to Appellants' hindsight and motivation arguments, we agree with the Examiner that the combined teachings of the prior art would have

suggested Appellants' claimed method. Specifically, as the Examiner determines (Ans. 3-6), Wortman discloses forming an anti-wet-out surface on an optical sheet by embossing, but does not teach the anti-wet-out surface lacks regular structure. Kashima discloses that interference fringes (e.g., Moire patterns) may be reduced in stacks of optical sheets by using a coating with beads to provide an irregularly repeating pattern on a flat surface. Hopfe discloses that conventional forming techniques, usually extrusion, are used to form a randomly roughened surface on one surface of an interlayer to prevent the formation of Moire patterns in the interlayer. Endo discloses that conventional techniques to form irregularly roughened surfaces include embossing or extrusion. Accordingly, based on these teachings, it would have been obvious to modify Wortman's regularly repeating anti-wet-out pattern in the method of making an optical device to have the irregularly roughened surface as disclosed by Kashima, Hopfe and Endo, made by embossing or extruding (i.e., shaped tool pressing) of Hopfe or Endo to reduce or eliminate Moire patterns (i.e., interference fringes) as taught by Kashima and Hopfe.

We are unpersuaded by Appellants' argument regarding lack of motivation to combine Hopfe with Wortman because Hopfe discloses extrusion, not embossing, to form the roughened surface. Hopfe discloses that "conventional techniques" are used to form the irregularly roughened surface (Hopfe, col. 5, ll. 19-21). Hopfe discloses that the irregularly roughened surface is "usually" formed by extrusion³ (e.g., a conventional

³ The Examiner finds that extrusion constitutes shaped tool pressing as claimed (Ans. 4 and 7). We agree in as much as extrusion involves passing a plastic-like material through a die (i.e., a shaping tool) such that the plastic-like material presses against the die to shape the material.

technique) (Hopfe, col. 5, ll. 29-34). In other words, Hopfe “usually” uses extrusion; however, other “conventional techniques” may be used to form the irregular surface. Hopfe does not explicitly state using embossing (i.e., Wortman’s shaped tool forming technique) to form the irregular surface structure.

Endo discloses that extrusion and embossing are conventional techniques for forming an irregularly roughened surface (Endo, col. 3, ll. 59-65). Accordingly, the teachings of the references as a whole would have suggested to one of ordinary skill in the art to form Hopfe’s irregularly roughened surface on Wortman’s optical sheet by embossing, such as taught by Endo. As the Examiner stated, the motivation to combine the references lies primarily in the knowledge of one of ordinary skill in the art (Ans. 6), which is evinced by the teachings of the applied prior art.

Appellants’ argument that Endo fails to provide motivation (i.e., a suggestion) for the combination because Endo seeks complete wet-out in the final product improperly attacks the references individually when the rejection is based on the teachings of the references taken as a whole. Specifically, Endo teaches forming an irregularly roughened surface on each surface of an interlayer. Hopfe teaches forming an interlayer with an irregularly roughened pattern on a second surface and a regular pattern on the first surface to produce an interlayer that eliminates Moire patterns (Hopfe, col. 8, ll. 10-18).

Accordingly, because Hopfe’s and Endo’s interlayer’s are at least made by shaping processes that result in structure (i.e., each has a first and/or second surface that has an irregularly roughened pattern formed thereon) substantially similar to Appellants’ claimed method of making an

optical film with an anti-wet-out surface lacking regular structure (i.e., irregular structure), it appears that Endo's interlayer would inherently possess the anti-wet-out or anti-Moire pattern property disclosed by Hopfe and Appellants. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977).

In any event, whether or not Endo discloses complete collapse of the roughened surface such that there is complete wet-out in the final product (i.e., the laminated glass) does not diminish Endo's teaching to form an irregular roughened surface on the interlayer. It appears to us that Endo's interlayer with the irregularly roughened surfaces would inherently possess Appellants' anti-wet-out property. *Id.*

Moreover, the portion of Hopfe relied on by the Examiner (i.e., Hopfe's Example 1) relates to the properties of the interlayer prior to lamination with the glass (Ans. 5). In other words, one of ordinary skill in the art reading Hopfe would understand that providing a layer with at least one irregularly roughened surface would suppress or eliminate Moire patterns in an optical film.

We are unpersuaded by Appellants' argument that the applied prior art fails to teach or suggest the formation of an anti-wet-out surface on a surface otherwise lacking regular structure using a shaping tool. Rather, as we noted above, the teachings of Wortman, Kashima, and Hopfe or Endo taken as whole would have taught or suggested the argued claim feature.

Appellants' non-analogous art argument is not persuasive because Hopfe and Endo are reasonably pertinent to the problem Appellants are trying to solve.⁴ *Oetiker*, 977 F.2d at 1447. Appellants argue that the

⁴ We add that the Supreme Court indicated that art need not be from the same field of endeavor to be analogous art and that any need or problem

problem to be solved is to reduce the effects of wet-out (Br. 7). However, Appellants broadly state in their Specification that their film reduces the incidence of defects in a display (Spec. 1). Appellants describe that defects in displays are manifested in different ways and include “wet-out” and “Newton’s rings” (Spec. 1 and 5). Appellants indicate that randomized variation in height of the film (i.e., an “anti-wet-out surface” as defined in the Specification) reduces wet-out, Newton’s rings and Moire patterns (Spec. 7).

From the foregoing, we agree with the Examiner’s statement that the problem to be solved by Appellants includes elimination of Moire interference when transparent sheets or films are placed adjacent and close together (Ans. 6). In fact, based upon Appellants’ Specification, Appellants’ problem may be more broadly stated as elimination or reduction of defects in a display (e.g., wet-out, Moire patterns, and/or Newton’s rings).

Hopfe and Endo are reasonably pertinent to the problem of reducing defects in displays (e.g., Moire patterns) by forming irregular surfaces on an optical layer. Accordingly, we find Appellants’ non-analogous art argument to be unpersuasive.

Regarding Appellants’ indicia of nonobviousness (i.e., simplification of the process as compared to Kashima’s coating process), we agree with Examiner that Appellants’ indicia argument is not on point because Kashima is not being relied on for the process steps (Ans. 7). Rather, Kashima is

known in the field of endeavor at the time of invention and addressed by the prior art can provide a reason for combining the elements in the manner claimed. *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007). Accordingly, any problem, including reducing Moire patterns, may provide a reason for the combination.

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relied on as a teaching reference concerning irregular structured films and their anti-wet-out properties. Accordingly, we are unpersuaded by Appellants' indicia of nonobviousness.

For the foregoing reasons, we sustain the Examiner's § 103 rejection of claims 35-52 and 69-72 over Wortman in view of Kashima and further in view of Hopfe or Endo.

DECISION

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)(1)(iv).

AFFIRMED

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