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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAMIAN FIOLKA and MARKUS DEGUENTHER

Appeal 2010-009436¹
Application 12/200,068
Technology Center 2800

Before JEAN R. HOMERE, KALYAN K. DESHPANDE, and
ERIC B.CHEN, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The real party in interest is Carl Zeiss SMT AG. (App. Br. 1.)

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-4, 23, 28, 29, 33, and 35-41. Claims 5-22, 24-27, 30-32, 34, and 42-44 have been withdrawn from consideration. (App. Br. 1.) We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Appellants' Invention

The invention is directed to a polarization-modulating optical element having a variable thickness profile as well as an optically active crystal with an optical axis to thereby affect the polarization of light rays. (Spec. 1, ll. 7-10.)

Illustrative Claim

Independent claim 1 further illustrates the invention as follows:

1. An optical element, comprising:
a polarization-modulating optical element comprising an optically active crystal having an optical axis, the polarization-modulating optical element having a thickness profile that, as measured in the direction of the optical axis, is variable,
wherein the polarization-modulating optical element has an element axis oriented substantially in the direction of the optical axis of the optically active crystal, and the thickness profile in relation to the element axis has a variation that depends only on an azimuth angle θ , where θ is measured from a reference axis that runs perpendicular to the element axis and intersects the element axis.

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Prior Art Relied Upon

The Examiner relied upon the following prior art as evidence of unpatentability:

Schafer	US 4,755,027	Jul. 5, 1988
Schuster	US 2001/0019404 A1	Sep. 6, 2001
Kunz	US 2005/0164522 A1	Jul. 28, 2005

Eugene Hecht, "Optics," Pearson Education Inc., pp. 348-349, 360, and 366-367, Fourth Edition (2002).

Rejections on Appeal

The Examiner rejected the claims on appeal as follows:

1. Claims 1-4, 23, 28, 29, and 33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Schaffer.
2. Claims 35, 36, 39-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Schaffer and Schuster.
3. Claims 37 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Schafer, Schuster and Kunz.

ANALYSIS

We consider Appellants' arguments *seriatim* as they are presented in the Appeal Brief, page 3, and the Reply Brief, pages 1-3.

Dispositive Issue: Have Appellants shown by a preponderance of evidence that the Examiner erred in finding that Schafer describes *a polarization-modulating optical element having an optically active crystal*, as recited claim 1?

Appellants argue that Schafer does not describe the disputed limitations emphasized above. (App. Br. 3, Reply Br. 1-3.) In particular, Appellants argue that even though Schafer discloses using quartz (SiO_2) in the conical surface of an optical medium, the disclosed quartz (quartz-glass or fused quartz) is not an optically active crystal, as evidenced by Hecht. (*Id.*) Further, Appellants submit that Shafer's disclosure of producing the desired radial or tangential component of polarization does not necessarily imply that crystalline quartz is used. Rather, such component of polarization is achieved through polarization-selective reflection losses and transmission factors at the conical interfaces of the disclosed device. (Reply Br. 1.)

In response, the Examiner finds that the quartz disclosed by Shafer in the fabrication of the conical surface has similar characteristics to that of a crystalline quartz (i.e., capable of rotating the plane of a linearly polarized light), which is an active quartz, as evidenced by Hecht. Therefore, the Examiner finds that Shafer inherently discloses using crystalline quartz in order to produce the radial or tangential component of polarization. Consequently, the Examiner submits that Schafer describes the disputed limitations, as claimed. (Ans. 8-9.)

On the record before us, we do not agree with the Examiner's finding of anticipation. As argued by Appellants, Schafer discloses using quartz-glass (i.e., fused glass) to fabricate conical bodies having polarization-selective reflection losses and transmission factors at the conical optical interfaces of the device. (Col. 3, ll. 37-45.) As evidenced by Hecht, the disclosed type of quartz is not an optically active crystal. (Hecht, 366.)

Additionally, because Appellants have shown that Shafer's disclosure of using quartz to achieve a component polarization does not necessarily involve crystalline quartz, Appellants have rebutted by a preponderance of the evidence the Examiner's finding of inherency.² Because Appellants have shown at least one error in the Examiner's finding of anticipation, we need not reach Appellants' remaining arguments. It follows that Appellants have shown error in the Examiner's rejection of claim 1 as being anticipated by Schafer.

Because claims 2-4, 23, 28, 29, 33, and 35-41 also recite the disputed limitations discussed above, and the additional references do not remedy the noted deficiencies, Appellants have similarly shown error in the Examiner's rejection of those claims.

² Our reviewing court has previously held that "[i]n relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). Further, the court has held that "after the PTO establishes a prima facie case of anticipation based on inherency, the burden shifts to appellant to 'prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.'" *In re King*, 801 F.2d 1324, 1327, (Fed. Cir. 1986) (quoting *In re Swinehart*, 439 F.2d 210, 212-13, (CCPA 1971)). *See also* MPEP §§ 2112 (IV.), (V.).

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DECISION

We reverse the Examiner's decision to reject claims 1-4, 23, 28, 29, 33, and 35-41 as set forth above.

REVERSED

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