

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 BRIAN KING

Appeal 2007-1064
Application 10/059,242
Technology Center 2800

Decided: June 1, 2007

Before KENNETH W. HAIRSTON, HOWARD B. BLANKENSHIP, and
MAHSHID D. SAADAT, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 and 3-17. Claim 2 has been cancelled and claims 18-23 have been withdrawn from consideration as drawn to a non-elected invention. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant's invention generally relates to holographic data storage and more specifically, to a method for apodizing or shaping an incident

reference beam having a substantially uniform intensity profile on a region of the holographic recording medium. An understanding of the invention can be derived from a reading of exemplary independent claim 1, which is reproduced as follows:

1. A method for apodizing an incident reference beam for a holographic recording medium, comprising impinging the incident reference beam on an apodizer and producing a modulated reference beam having a substantially uniform intensity profile on a region of the holographic recording medium, wherein the modulated reference beam is off-axis from normal at a point in the region, the modulated reference beam is converging or diverging at a point in the region and further wherein the region comprises an overlap of the modulated reference beam and an object beam.

The Examiner relies on the following prior art references:

Cowan	US 4,469,407	Sep. 4, 1984
Chern	US 5,007,690	Apr. 16, 1991
Kathman	US 5,850,300	Dec. 15, 1998
Dhar	US 6,103,454	Aug. 15, 2000
Hoffnagle	US 6,295,168 B1	Sep. 25, 2001

The rejections as presented by the Examiner are as follows:

1. Claims 1, 3-8, and 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chern and Cowan.
2. Claims 10-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chern and Cowan and further in view of Dhar.
3. Claims 9 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chern and Cowan and further in view of Hoffnagle or Kathman.

Rather than reiterate the opposing arguments, reference is made to the Briefs and the Answer for the respective positions of Appellant and the Examiner.

We reverse.

ISSUE

To show that the Examiner erred in rejecting the claims under 35 U.S.C. § 103(a) (2004), Appellant's arguments focus on the claimed limitation related to a reference beam having "a substantially uniform intensity profile on a region of the holographic recording medium" (Br. 4). The issue turns on whether the combination of Chern with Cowan teaches or suggests the claimed subject matter. Specifically, the issue is:

whether the prior art teachings disclose or suggest the claimed subject matter including an apodizer that can produce a substantially uniform profile on a region of the recording medium.

FINDINGS OF FACT

Appellant's claim 1 requires an apodizer that produces a modulated reference beam from the impinging reference beam. The produced beam is further required to have a substantially uniform intensity profile on a region of the holographic recording medium, be off-axis from normal at a point in the region of the medium, and be converging or diverging at a point in the region. This arrangement is described as the solution to the problem of unequal distribution of the illuminated spot on the recording medium when the reference beam is of a convergent and/or divergent nature (Specification 6, ¶ 0015).

Chern relates to a holographic data storage system (col. 1, ll. 6-11) having an exposure system wherein collimated laser beam 68 is converted to a divergent beam by lens 72 (Figure 8; col. 5, l. 66 through col. 6, l. 4).

Chern uses a Gaussian apodizer 74 in the divergent beam path for directing the exposure beam to collimating lens 76 which produces a broad beam 78 directed to screen 66 (Figure 8; col. 6, ll. 4-7).

Cowan discloses a laser beam apodizing filter for compensating the Gaussian distribution of the laser beam and generating a substantially uniform exposure (col. 2, ll. 14-18).

As depicted in Figure 1, Cowan interposes an apodizing filter in the laser beam to even out the intensity of the beam between the center and the edge area (col. 2, ll. 58-68). Thus a substantially “flat” intensity curve is obtained on the laser beam as the beam exits the filter (col. 2, l. 68 through col. 3, l. 5).

PRINCIPLES OF LAW

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *See In re Kahn*, 441 F.3d 977, 987-988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

Moreover, in evaluating such references it is proper to take into account not only the specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

ANALYSIS

Appellant correctly points out that the apodizer in Cowan produces a flat intensity profile only when the beam leaves the apodizer (Br. 4). We also agree with Appellant that the apodizer of Cowan does not produce a substantially uniform intensity profile at a point in the holographic storage medium (Br. *id.*). While the beam leaving the apodizer may have uniform intensity, it has no effect on the intensity profile of the beam on a region of the holographic recording medium. In that regard, Appellant correctly recognizes (Oral Hearing) the absence of any correspondence between the uniform beam intensity provided by apodizer of Cowan and the geometry of its imaging system.

Therefore, we disagree with the Examiner (Answer 8) that a uniform intensity profile at a point in a region of the recording medium, which is missing from Chern, may be discerned from Cowan. In fact, based on the teachings of Chern and Cowan outlined *supra*, we find ourselves persuaded by Appellant's argument that there is nothing in Cowan to indicate that the uniform intensity beam that leaves the apodizer will have a flat intensity profile at the storage medium for a converging or diverging beam. Both independent claims 1 and 13 require that modulated reference beam produced by the apodizer have uniform intensity profile on a region of the recording medium for an off-axis beam which is also converging or diverging.

With respect to the rejection of claims 9-12 and 17, we note that the Examiner further relies on Dhar and Hoffnagle or Kathman for the additional features recited in the these dependent claims. However, the

Examiner has not pointed to any additional teachings or convincing rationale in modifying the combination of Chern and Cowan with the teachings of these references that would have overcome the deficiencies of the applied prior art as discussed above with respect to claim 1.

CONCLUSION OF LAW

On the record before us, we find that the Examiner's rejection of claims 1, 3-17 is not supported by a legally sufficient basis for holding that the claimed subject matter would have been obvious within the meaning of § 103(a).

Therefore, in view of our analysis above, we cannot sustain the 35 U.S.C. § 103 rejection of independent claims 1 and 13, nor of their dependent claims 3-8 and 14-16, over Chern and Cowan. Similarly, we do not sustain the 35 U.S.C. § 103 rejection of claims 10-12 over Chern and Cowan in combination with Dhar, nor of claims 9 and 17 over Chern and Cowan in combination with Hoffnagle or Kathman.

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DECISION

The decision of the Examiner rejecting claims 1, 3-17 under 35 U.S.C.
§ 103 is reversed.

REVERSED

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MORRISON & FOERSTER, L.L.P.
1650 TYSONS BOULEVARD
SUITE 400
MCLEAN, VA 22102