

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte JAMES C. ERSKINE and DALE L. PARTIN

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Appeal No. 96-0550  
Application 07/960,148<sup>1</sup>

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ON BRIEF

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Before CALVERT, McQUADE and CRAWFORD, Administrative Patent Judges.

CRAWFORD, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 10, 29 and 33. Claims 1-9, 11-28 and 30-32 have been canceled.

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<sup>1</sup> Application for patent filed October 13, 1992.

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Appellants appealed subject matter is a vehicle instrumentation apparatus. Claim 10 is illustrative of the subject matter on appeal:

10. A vehicle instrumentation apparatus comprising a deformable mirror device having a matrix of mirrors, each mirror in the matrix individually controllable between at least two states to provide information to a vehicle operator wherein a windshield projects an image of a display created by the deformable mirror device, wherein the image is projected as a double image due to reflection of the image off of both an inside reflecting surface and an outside reflecting surface of the windshield, the apparatus also comprising, means for modulating first mirrors of the array around a periphery of second mirrors of the array generating the display, thereby surrounding the periphery of the second mirrors on the deformable mirror device with the first mirrors that are activated a smaller fraction of the time than the second mirrors are activated, thereby softening the edges of the display and the projected image to reduce perception of the double image by the vehicle operator.

#### THE REFERENCES

The following references were relied on by the examiner:

Gross	2,750,833	June 19, 1956
Lasher et al. (Lasher)	4,486,785	Dec. 4, 1984
Ott	4,680,579	July 14, 1987
Iino	4,804,836	Feb. 14, 1989

#### THE REJECTIONS

Claims 10, 29 and 33 stand rejected under 35 U.S.C.

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§ 112, first paragraph as being based on a specification which is objected to for "failing to provide an enabling disclosure." Claims 10, 29 and 33 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ott in view of Iino and Lasher.<sup>2</sup>

All the claims stand or fall together (Brief at page 7).

Rather than reiterate the entire arguments of the appellants and the examiner in support of their respective positions, reference is made to appellants' brief (Paper No. 19), reply brief (Paper No. 22), supplement to appellants' brief (Paper No. 25), the examiners answer (Paper No. 20), and supplemental examiner's answer (Paper Nos. 23 and 26) for the full exposition thereof.

#### OPINION

Turning first to the rejection under 35 U.S.C. § 112, first paragraph, we initially note that it is well settled that the examiner has the initial burden of producing reasons that would substantiate a rejection based on lack of enablement. See, In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ

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<sup>2</sup> The examiner relies on Gross for teaching that the double image problem is a long well recognized problem.

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561, 563 (CCPA 1982). Once this is done, the burden shifts to the appellants to rebut the conclusion of the examiner regarding enablement by presenting evidence to prove that the disclosure is enabling. Id. at 1561, 27 USPQ2d at 1513; In re Eynde, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973); In re Doyle, 482 F.2d 1385, 1392, 179 USPQ 227, 232 (CCPA 1973), cert. denied, sub nom. Doyle v. Comm'r of Patents, 416 U.S. 935 (1974). Additionally, as the court in In re Gaubert, 524 F.2d 1222, 1226, 187 USPQ 664, 667 (CCPA 1975) stated:

[t]o satisfy § 112, the specification disclosure must be sufficiently complete to enable one of ordinary skill in the art to make the invention without undue experimentation, although the need for a minimum amount of experimentation is not fatal.... Enablement is the criterion, and every detail need not be set forth in the written specification if the skill in the art is such that the disclosure enables one to make the invention.

The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having regard for the nature of the invention and the state of the art. See, In re Wands, 858 F.2d 731, 736, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). The provisions of 35 U.S.C. § 112, first paragraph, do not require that the specification contain what is well known to those skilled in the art. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.,

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730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).

However, an examiner may reject a claim if it is reasonable to conclude that one skilled in the art would be unable to carry out the claimed invention. Eynde, 480 F.2d at 1370, 178 USPQ at 474.

In the present case the examiner is of the opinion that the disclosure fails to disclose how to use gray scale to soften the edges of the image reflected on the windshield (Examiner's Answer at page 3).

The specification states that a double image is produced when an image is projected onto an automotive windshield due to the reflection of the projected image from both the inside and outside reflecting surfaces of the windshield (Specification at page 14). The specification also discloses:

The effect of the double image can be made less noticeable by "softening" the edges of the projected image. This softening of the edge of the image is achieved by surrounding the periphery of the activated pixels on the deformable mirror device with pixels that are activated a smaller fraction of the time, i.e., using gray scale. The "next nearest neighbor" pixel may be activated with a smaller duty cycle than the pixels that are "nearest neighbors" to the periphery of the fully activated pixels, causing the edges of the image to be less distinct and the double image to be less noticeable. [Specification at page 15]

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In our opinion, the specification clearly discloses how to make and use the invention as required by 35 U.S.C. § 112, first paragraph. In fact the examiner does not state that a person of ordinary skill in the art would not be taught how to make and use gray scale to reduce the perception of a double image. Rather, the examiner states that the specification does not disclose how gray scale is used to reduce the perception of a double image. As such, the examiner's rejection is directed to the lack of disclosure of the theory of the invention.

However, the inclusion of a theory of how the invention works is not necessary to meet the enablement requirement of 35 U.S.C. § 112, first paragraph. See, Fromson v. Advance Offset Plate, Inc., 720 F.2d 1565, 1570, 219 USPQ 1137, 1140 (Fed. Cir. 1983).

As the examiner has not advanced reasons why a person skilled in the art would not be taught how to make or use the invention, the examiner has failed to establish a prima facie case of enablement. See Strahilevitz, 668 F2d at 1232, 212 USPQ at 563. In view of the foregoing we will not sustain the rejection of claims 10, 29 and 33 under 35 U.S.C. § 112, first paragraph.

Turning now to the rejection of claims 10, 29 and 33 as unpatentable under 35 U.S.C. § 103, we find that Ott discloses an

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optical system for projection of a display which includes a matrix of mirrors. Each mirror in the matrix is individually controllable between at least two states (Col. 3, line 66 to Col. 4, line 4, lines 33-41). In a quiescent state each mirror reflects light along an optical path which impinges on a reflecting portion of a Schlierin optical device and returns to the original light source (Col. 4, lines 4-10). In a deformed state, each mirror reflects light along an optical path directed to a transmitting portion of the Schlierin optical device. The light passes through to Schlierin's optical device onto a viewing screen (Col. 4, lines 33-41). Each mirror may have more than one deformed state so that the viewing screen can be illuminated with different intensities so as to provide gray scale (Col. 5, lines 7-12). According to the examiner, Ott does not teach that the device can be used in a vehicle display system or that gray scale can be used to reduce the perception of a double image.

Iino discloses an optical projector for a head up display for a vehicle (Fig. 1A, Col. 3, lines 8-11).

Lasher discloses a method of reducing the usual perception of jagged or stepped edges produced by bilevel

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sampling of an image in a telecommunication system (Col. 2, lines 7-9). Video data is first compressed and sent over a low bandwidth channel (Col. 1, lines 60-64). The data is first digitized by assigning a binary value to each picture element or pel. (Col. 1, lines 66-67). As depicted in Figure 4, this assignment of a binary value to each element known as bilevel sampling produces a stepped appearance when the video data is reproduced. To reduce the visual impact of the stepped edges, Lasher teaches that gray-scale pels are selectively introduced before the image is displayed (Col. 2, lines 50-53).

The examiner is of the opinion that:

...Iino teaches that an optical projector apparatus is conventionally used in automotive vehicles for head up displayed-signals (see fig. 1). Thus, it would have been obvious to use the optical instrumentation system taught by Ott in the head up display environment as taught by Iino...

...it would have been obvious to use the teaching of Lasher in the device of Ott as modified to use gray scale to soften the edges of the image so that the optical quality of the perceived image could have been improved. ...since Ott already had the idea of modulating the deformable mirrors to upgrade the perceived image, it would have been certainly obvious ...to have been motivated to have modulated the deformable mirrors of [O]tt as modified

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to achieve gray scale to soften the edges of the image for the same desired purpose of improve [sic:improving] the quality of the perceived image as suggested by Lasher. [Examiner's Answer at pages 6-7]

Appellants argue that there is no motivation to combine the teachings of Lasher with Ott and Iino and that Lasher is nonanalogous art.

We will not sustain the rejection of claims 10, 29 and 33 under 35 U.S.C. § 103.

The examiner has failed to set forth a prima facie case of obviousness. It is the burden of the examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express or implied suggestions found in the prior art. See In re Sernaker, 702 F.2d 989, 994, 217 USPQ 1, 5 (Fed. Cir. 1983).

Even if Lasher is analogous art, we agree with the appellants that there is no teaching or suggestion to combine the teachings of Lasher and Ott. Lasher discloses a method whereby video data is sent from a first location to a second location utilizing bilevel sampling. The appearance of the stepped edges which are produced by the bilevel sampling is reduced by selectively introducing gray scale pels before the image is produced. Lasher does not suggest utilizing gray scale in a

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projection display system as disclosed in Ott because Lasher is concerned with problems associated with bilevel sampling not the problems associated with projection display systems. There is simply nothing in either Ott or Lasher to motivate a person of ordinary skill in the art to combine the disparate teachings of Ott and Lasher. In our view the only suggestion for such a combination would have been hindsight knowledge impermissibly derived from appellant's disclosure. See In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). We have reviewed the Iino reference but find nothing there to cure the deficiencies in the rejection.

The decision of the examiner is reversed.

REVERSED

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Administrative Patent Judge	)	
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