The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ALEXANDER V. HENZEN

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Appeal No. 1999-1559
Application No. 08/762,687

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ON BRIEF

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Before FLEMING, RUGGIERO, and BLANKENSHIP, Administrative Patent Judges.

FLEMING, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 6, all of the claims pending in the present application.

The invention relates to a liquid crystal display device

comprising twisted nematic liquid crystal material having a positive dielectric anisotropy between two substrates. On page 1 of the specification, Appellant discloses that liquid crystal display devices using twisted nematic liquid crystal material have problems due to threshold voltage and saturation voaltage are dependent on ambient temperature. On page 2 of the specification, Appellant disclose that the invention is based on the recognition that this problem is solved by controlling the frequency at which the pixels are driven based upon the variation of the ambient temperature. On page 3 of the specification, Appellant discloses that Figure 1 is a diagrammatic cross-section of a part of a liquid crystal display comprising a crystal 1 having a twisted nematic liquid crystal material 2 which is present between two supporting substrates 3 and 4. Appellant also discloses that the cell includes a temperature sensor 9 which is connected to a drive section 10. Figure 1 shows that drive section 10 includes element 17. On page 5 of the specification, Appellant discloses that Figure 6 shows diagrammatically the structure of element 17 of the drive section 10. In particularly, Appellant discloses that element 17 comprises a frequency

selection circuit 20 which varies the frequency based upon the measured temperature.

The independent claim 1 is reproduced as follows:

1. A liquid crystal display device comprising a first sub strate which is provided with electrodes, and a second substrate which is parallel to the first substrate and is provided with electrodes, and a twisted nematic liquid crystal material having a positive dielectric anisotropy between the two substrates, while, viewed perpendicularly to the substrates, overlapping parts of the electrodes define pixels, the display device being further provided with drive means for presenting voltages to the electrodes, characterized in that the drive means are provided with means for controlling the frequency at which pixels are driven, dependent on the temperature of the display device.

The Examiner relies on the following references:

Fukai et al. (Fukai)	4,045,791	Aug. 30, 1977
Tsuboyama et al. (Tsuboyama)	4,902,107	Feb. 20, 1990

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tsuboyama in view of Appellant's admitted prior art.

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Fukai in view of Appellant's admitted prior art.

Rather than reiterate the arguments of the Appellant and the Examiner, reference is made to the brief and answer for the respective details thereof.

OPINION

We will not sustain the rejection of claims 1 through 6 under 35 U.S.C. § 103.

The Examiner has failed to set forth a ***prima facie*** case. 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 teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. ***In re Sernaker,*** 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." ***Para-Ordnance Mfg. v. SGS Importers Int'l Inc.,*** 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), ***citing W. L. Gore & Assocs., Inc., v. Garlock, Inc.,*** 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983).

On pages 6 through 8 of the brief, Appellant argues that

there is no teaching or even suggestion in Tsuboyama that the Tsuboyama ferroelectric liquid crystal material may be replaced by a twisted nematic liquid crystal material having a positive dielectric anisotropy as claimed by Appellant. On pages 8 and 9 of the brief, Appellant also argues that there is no teaching or suggestion in the Fukai patent that the liquid crystal material should be a twisted nematic liquid crystal material.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch,*** 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon,*** 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is further established that "[s]uch a suggestion may come from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem." ***Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.,*** 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), ***citing In***

re Rinehart, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976)(considering the problem to be solved in a determination of obviousness). The Federal Circuit reasons in ***Para-Ordnance Mfg. Inc. v. SGS Importers Int'l Inc.,*** 73 F.3d 1085, 1088-89, 37 USPQ2d 1237, 1239-40 (Fed. Cir. 1995), that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art, would have been reasonably expected to use the solution that is claimed by the Appellant. However, "[o]bviousness may not be established using hindsight or in view of the teachings or suggestions of the invention." ***Para-Ordnance Mfg. v. SGS Importers Int'l,*** 73 F.3d at 1087, 37 USPQ2d at 1239, ***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.,*** 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13. In addition, our reviewing court requires the PTO to make specific findings on a suggestion to combine prior art references. ***In re Dembiczak,*** 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999).

Upon our review of Tsuboyama, we agree with Appellant

that Tsuboyama fails to teach or even suggest the proposed modification by the Examiner. In particular, we note that in column 3, lines 22 through 24, Tsuboyama is concerned with unrelated problems of the need for spacing between the substrates and the tilt angle. Tsuboyama is not concerned with the problem of providing operational bistability of the pixel based upon variations of nematic temperature.

In regard to Fukai, we find no suggestion of varying the frequency of the voltage to overcome the problems of the liquid crystal material employed. While Fukai shows a liquid crystal display device having a nematic crystal material, there is no teaching or suggestion that Fukai contemplates the problems of using a liquid crystal material that is a twisted nematic liquid crystal material having a positive dielectric anisotropy as Appellant has claimed.

We note that the only relevant art concerning the problem of a twisted nematic liquid crystal material having a positive dielectric anisotropy is the prior art admitted by the Appellant found on page 1 of the specification. The admitted prior art recognizes the problem that this type of material has problems at varying ambient temperature because of the

characteristics of the twisted nematic liquid crystal material having a negative dielectric anisotropy. However, the admitted prior art solves the problem not by varying the frequency of the drive circuit but instead varies the drive voltage. We fail to find that the Examiner has provided any evidence to suggest that one of ordinary skill in the art who sets out to solve the problem of compensating for variations of the characteristics of a liquid crystal made from a ferroelectric crystal material having negative dielectric anisotropy due to the ambient temperature would have been reasonably expected to use the solution proposed by either Tsuboyama or Fukai which are dealing with completely different materials having completely different characteristics.

In view of the foregoing, we have not sustained the rejections of claims 1 through 6 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

Appeal No. 1999-1559
Application No. 08/762,687

MICHAEL R. FLEMING Administrative Patent Judge	)
JOSEPH F. RUGGIERO Administrative Patent Judge	) BOARD OF PATENT)) APPEALS AND)) INTERFERENCES
HOWARD D. BLANKENSHIP Administrative Patent Judge	)

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