

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HITOSHI KAMAMORI, KOJI IWAS, TAKAKAZU FUKUCHI,
MITSURU SUGINOYA, TSUTOMU WATANABE and TOSHIAKI OTA

Appeal No. 96-0763
Application No. 07/840,345¹

ON BRIEF

Before PAK, OWENS, and LIEBERMAN, Administrative Patent Judges.
LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1, 6, 7, 9 through 11 and 14 through 16, as amended under 37 CFR § 1.116 after the final rejection. See the amendments filed May 11, 1994 (paper no.

¹ Application for patent filed February 24, 1992.

12), and December 9, 1994 (paper no. 17). Further see the respective advisory actions dated June 1, 1994 (paper no. 13), refusing entry of the amendment and the advisory action dated January 31, 1995 (paper no. 19) granting entry of both amendments after the final rejection.

THE INVENTION

The invention is drawn to a method for the manufacture of a color filter which may be used for a liquid crystal display. The method of manufacture comprises forming a series of layers on a substrate as follows;

1. A conductive film having stripe patterns with gaps between the stripe patterns is formed on an insulative surface of a substrate.
2. A colored layer is formed on the stripe patterns of the conductive film such that gaps exist between the stripe patterns of the colored layer.
3. A transparent conductive film is formed over the stripe patterns of both the colored layer and in the gaps.
4. A metal film having a lattice pattern is formed over the transparent conductive film to shield light transmittance

passing through the gaps between the stripe patterns of the colored layer on the conductive film.

THE CLAIMS

Claim 1 and 6 are illustrative of appellants invention and are reproduced below.

1. A method of manufacturing a color filter, comprising the steps of:

forming a conductive film having stripe patterns on an insulative surface of a substrate such that gaps exist between the stripe patterns;

forming a colored layer on the stripe patterns of the² conductive film by electrodeposition such that gaps exist between the stripe patterns of the colored layer;

forming a transparent conductive film over the stripe patterns of the colored layer and in the gaps; and

forming a metal film having a lattice pattern over the transparent conductive film so as to shield light transmittance passing through the gaps between the stripe patterns of the colored layer on the conductive film.

6. A method of manufacturing a color filter according to claim 1, including a step of forming an inorganic film on the colored layer before the step of forming the transparent conductive film.

² The word, "the" was added in the amendment filed October 26, 1993 (paper no. 9). Although, "the" was subsequently omitted in the amendment filed May 11, 1994 under Rule 116(paper no. 12), we conclude that the omission was inadvertent and typographical. Therefore, "the" is present in claim 1, line 6.

THE REFERENCES OF RECORD

As evidence of obviousness, the examiner relies upon the following references.

Hatano et al. (Hatano)	4,935,757	Jun. 19,
1990		
Yanagisawa	5,128,786	Jul. 7,
1992		
Sekimura, European Patent	0,226,218	Jun. 6,
1987		
Application (EPA'218)		
Ohgawara, European Patent	0,338,412	Oct. 10,
1988		
Application (EPA'412)		

THE REJECTIONS

Claims 1, 7, 10, 11, and 14 through 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hatano in view of Yanagisawa and further in view of EPA'412.

Two new grounds of rejection were entered in the Answer, and responded to by appellant in the Reply Brief. They are as follows;

Claims 1, 6, 7, 9 through 11 and 14 through 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hatano in view of Yanagisawa further in view of EPA'412, and further in view of EPA'218.

Claims 6 and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellants regard as the invention.

OPINION

As an initial matter appellants submit that the claims are grouped in two groups separately patentable on their own merits. Claims 1, 7, 10, 11, and 14 through 16 constitute the first group. Claims 6 and 7 constitute the second group. Accordingly, we select claims 1 and 6 respectively as representative of each group of claims. See 37 CFR 1.192 § (c)(5)(1994).

We have carefully considered appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter is unpatentable in view of the applied prior art. Accordingly, we will sustain

the examiner's rejection for essentially those reasons expressed in the Answer. However, we will not sustain the rejection under the second paragraph of 35 U.S.C. § 112.

The Rejection Under 35 U.S.C. § 112

The legal standard for definiteness under the second paragraph of 35 U.S.C. § 112 is whether a claim reasonably apprises those of ordinary skill in the art of its scope. In re Warmerdam, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). The first inquiry is to determine whether the claims set out and circumscribe a particular area with a reasonable degree of precision and particularity.

The examiner's position is that the phrase "forming an inorganic film on the colored layer" is indefinite due to its breadth, Answer, page 5. However, breadth itself is not indefinite. In re Gardner, 427 F.2d 786, 788, 166 USPQ 138, 140 (CCPA 1970). The definiteness of the language employed must be analyzed not in a vacuum, but in light of the teachings of the particular application. See In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). Applying the analysis set forth above, appellant's specification, page 7, discloses SiO₂ and other inorganic films. One of ordinary skill in art

reading the claims in light of the specification would be possessed with a reasonable degree of certainty as to the subject matter encompassed within the claims. Even, if we accept the examiners analysis that the inorganic layer could be another ITO film, the additional permutation would not result in an indefinite claim. Only a broader interpretation of the claimed subject matter would be the result. Accordingly, the examiner has failed to establish with respect to the phrase "forming an inorganic film on the colored layer" that one of ordinary skill in the art would not be apprised of the scope of the claims containing this phrase.

Based on the above analysis, the rejection under § 112 is not sustained.

The Rejections under § 103

The sole issue before us is whether the examiner has established a prima facie case of obviousness based upon the art of record. An analysis of the primary reference to Hatano requires us to conclude that the sequence of layers used as a liquid crystal display meets the requirements of the claimed subject matter. We find that figure 4 of Hatano discloses a transparent substrate **12**. A conductive film **13** is formed on

the substrate. Color filters **14** are formed on the conductive film. A second conductive film **15** is formed over the colored layers. Finally a mask **16** is formed over the second conductive film. We find all the layers to be transparent or light transmitting. See Column 3, line 49 to column 4, line 13. We find the conductive film **13** etched into a pattern of stripes as required by the claimed subject matter. See column 4, lines 54-55. We further find the mask **16** has a lattice pattern as required by the claimed subject matter. See Figure 3. Hatano is silent as to the composition of the substrate and uses a resinous black pigment containing mask. Accordingly, Hatano neither discloses that the substrate has an insulative surface nor teaches a metal film as a light shielding layer.

Yanagisawa and EPA'412, both directed to liquid crystal displays disclose glass substrates. See Yanagisawa, col 4, line 16, EPA'412, column 11, lines 43 -46, and examples 1, 6 and 7. The examiner has found glass to be an insulative surface, Answer, page 4. Appellants have not disputed the examiners' finding in their Reply Brief. See page 7. Accordingly, we agree with and adopt this finding. Based upon the above

considerations, we conclude that glass substrates are conventionally used in liquid crystal displays. Accordingly, it would have been obvious to one of ordinary skill in the art to have used an insulative glass substrate in the claimed subject matter.

As to the utilization of metallic shielding layers, both Yanagisawa and EPA'412 are directed to metallic shielding layers in liquid crystal displays. We find that EPA'412 discloses the use of either optosetting black ink or a thin metallic film. See column 4, line 53 to column 5, line 2. Moreover, we find that EPA'412 discloses that the shielding layer may be used in numerous alternative locations. It may be adjacent to a conductive film or to a color filter. See column 5, lines 3 through 14, and column 6, lines 13 - 18. See also Examples 6 and 7.

Based upon the above findings, we conclude that it would have been obvious for one of ordinary skill in the art to prepare appellants' color filter by incorporating both the glass substrate of either Yanagisawa or EPA'412 and the thin metallic shielding layers of EPA'412 in place of the black

pigmented shielding layer of Hatano to achieve a structure meeting the requirements of the claimed subject matter.

One issue before us is whether the person having ordinary skill in the art would have found a suggestion in the teachings of the references of record to prepare a color filter according to appellants' claimed process and whether the references would have revealed that such person would have a reasonable expectation of success. See In re Vaeck 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). Based upon our findings supra, we answer both questions in the affirmative. Hatano suggests the preparation of liquid crystal displays containing appellants' claimed color filter, except as noted supra. The liquid crystal displays of Yanagisawa and EPA'412 disclose the conventional use of insulative glass substrates, and the use of metallic film as shielding layers. EPA'412 provides the expectancy that whether the shielding layer is adjacent to the substrate, a conductive electrode or a color filter, it would function in a successful manner. See column 5, lines 3 - 14.

Accordingly, we conclude that the prior art would have suggested to those of ordinary skill in the art to make the claimed color filter and that in so making or carrying out,

those of ordinary skill in the art would have had a reasonable expectation of success. Therefore, we will sustain the rejection of the examiner.

As to the rejection of claims 6 and 9, we find that EPA'218 discloses a liquid crystal display containing an inorganic film layer atop a colored filter layer, which functions as a protection layer, wherein, "[t]ransparent electrodes can be formed further thereon." See page 4, lines 22 - 55. Accordingly, an inorganic film is formed between the color filter layer and the transparent electrode layer. We further find that EPA'412 discloses that films of silicon dioxide are coated on the electrode layer. See column 12, lines 29 -32, and Examples 1 and 6. Based upon the above considerations, we conclude that it would have been obvious to one of ordinary skill in the art to have used the inorganic protection layers of EPA'218 and EPA'412 to separate conductive layers and filter layers.

Appellants have argued both in their principal Brief and in their Reply Brief that Yanagisawa teaches forming a metal shielding only on a glass substrate. See Brief, page 9, and Reply Brief, page 7. However, the claimed subject matter

before us is directed to a method of manufacture, "comprising." The claim is open to additional steps such as the utilization of a second substrate following application of the metal film in the process of forming a color filter. The use of two substrates in this art is entirely conventional as taught by Hatano Figure 1, **12** and **19**, and by Yanagisawa, Figures 5 and 10, **11** and **12**. Accordingly, a second glass substrate may be added after the metal shielding. We conclude that the language of the claimed subject matter does not preclude a shielding layer being adjacent to a second substrate.

DECISION

The rejection of claims 1, 7, 10, 11, and 14 through 16 under 35 U.S.C. § 103 as being unpatentable over Hatano in view of Yanagisawa and further in view of EPA'412 is affirmed.

The rejection of claims 1, 6, 7, 9 through 11 and 14 through 16 under 35 U.S.C. § 103 as being unpatentable over Hatano in view of Yanagisawa and further in view of EPA'412, and further in view of EPA'218 is affirmed.

The rejection of claims 6 and 9 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant regards as the invention is reversed.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

CHUNG K. PAK)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
TERRY J. OWENS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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PAUL LIEBERMAN)	
Administrative Patent Judge)	

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ADAMS & WILKS
50 BROADWAY - 31st FLOOR
NEW YORK, NY 10004