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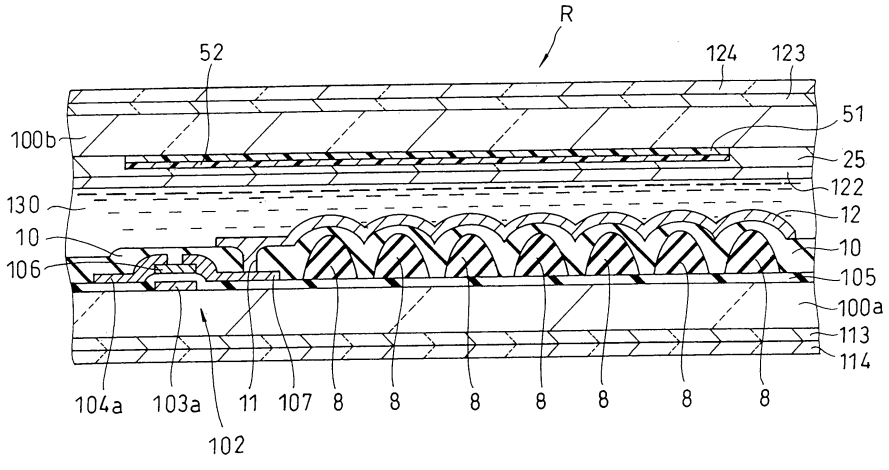
(54) Color liquid crystal panel, method for manufacturing the same, and color liquid crystal display device employing the same

(57) A color liquid crystal panel comprising a thin film transistor formed in each pixel, a reflective electrode connected to said thin film transistor, and a transparent electrode. The color liquid crystal panel is further constructed such that a display surface of said color liquid crystal panel allows a light emitted from a backlight to exit from said display surface through said transparent electrode (9) and another light inputted to said display surface to exit from said display surface after being reflected by said reflective electrode (12). The color liquid crystal panel further comprises a color filter (51) and a transparent film (52) formed between said color filter and a transparent substrate (100b) while varying a volume thereof depending on a color to be displayed. Color reproduction ranges of the light exiting from the display surface through the transparent electrode and the another light exiting from the display surface after being reflected by the reflective electrode (12) substantially coincide with each other.

FIG. 14



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EUROPEAN SEARCH REPORT

Application Number
EP 14 00 2491

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	JP 2000 111902 A (SHARP KK) 21 April 2000 (2000-04-21) * abstract * -----	1-3,7	INV. G02F1/1335
A	JP H11 183891 A (CASIO COMPUTER CO LTD) 9 July 1999 (1999-07-09) * the whole document * -----	1-3,7	

TECHNICAL FIELDS SEARCHED (IPC)

G02F

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
The Hague	14 October 2014	Gill, Richard

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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Application Number
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-3, 7

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 14 00 2491

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3, 7

A color liquid crystal panel comprising:a thin film transistor formed in each pixel;a reflective electrode connected to said thin film transistor; anda transparent electrode,characterized in that,said color liquid crystal panel being further constructed such that a display surface of said color liquid crystal panel allows a light emitted from a backlight to exit from said display surface through said transparent electrode (9) and another light inputted to said display surface to exit from said display surface after being reflected by said reflective electrode (12), said color liquid crystal panel being further comprising a color filter (51) and a transparent film (52) formed between said color filter and a transparent substrate (100b) while varying a volume thereof depending on a color to be displayed, wherein color reproduction ranges of said light exiting from said display surface through said transparent electrode (9) and said another light exiting from said display surface after being reflected by said reflective electrode (12) substantially coincide with each other.

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2. claims: 4-6

A color liquid crystal panel comprising:a thin film transistor formed in each pixel;a reflective electrode connected to said thin film transistor; anda transparent electrode,characterized in that,said color liquid crystal panel being further constructed such that a display surface of said color liquid crystal panel allows a light A method for manufacturing a color liquid crystal panel, said color liquid crystal panel comprising:a thin film transistor formed in each pixel;a reflective electrode connected to said thin film transistor; anda transparent electrode,said color liquid crystal panel being further constructed such that a display surface of said color liquid crystal panel allows a light emitted from a backlight to exit from said display surface through said transparent electrode and another light inputted to said display surface to exit from said display surface after being reflected by said reflective electrode,characterized in that,said method for manufacturing said color liquid crystal panel, comprising the steps of:preparing photomasks in such a manner that said photomasks each are formed corresponding to a color to be displayed to have a pattern therein corresponding to a pattern of transparent film (52);coating a raw material film that constitutes a transparent film (52) on a transparent substrate (100b);forming an associated pattern in the raw material film using said photomask to form a transparent film (52) on said transparent substrate (100b);coating

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

another raw material film that constitutes a color filter (51) on said transparent substrate (100b); andexposing and developing said another raw material film to form said color filter (51) so as to have a flat surface thereof corresponding to a color to be displayed.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 00 2491

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-10-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2000111902 A	21-04-2000	JP 3335130 B2	15-10-2002
		JP 2000111902 A	21-04-2000
JP H11183891 A	09-07-1999	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	彩色液晶面板，其制造方法以及使用该彩色液晶面板的彩色液晶显示装置		
公开(公告)号	EP2793074A3	公开(公告)日	2015-04-08
申请号	EP2014002491	申请日	2002-04-15
[标]申请(专利权)人(译)	NEC液晶技术株式会社		
申请(专利权)人(译)	NLT科技有限公司.		
当前申请(专利权)人(译)	NLT科技有限公司.		
[标]发明人	IKENO HIDENORI FUJIMAKI ERIKO		
发明人	IKENO, HIDENORI FUJIMAKI, ERIKO		
IPC分类号	G02F1/1335 G02B5/20 G09F9/30 G09F9/35		
CPC分类号	G02F1/133516 G02F1/133514 G02F1/133555		
审查员(译)	GILL，RICHARD		
优先权	2001117041 2001-04-16 JP		
其他公开文献	EP2793074A2		
外部链接	Espacenet		

摘要(译)

一种彩色液晶面板，包括形成在每个像素中的薄膜晶体管，连接到所述薄膜晶体管的反射电极，以及透明电极。彩色液晶面板还构造成使得所述彩色液晶面板的显示表面允许从背光发出的光通过所述透明电极（9）从所述显示表面射出，并且另一光输入到所述显示表面以从所述显示表面射出。所述显示表面在被所述反射电极（12）反射之后。彩色液晶面板还包括滤色器（51）和形成在所述滤色器和透明基板（100b）之间的透明膜（52），同时根据要显示的颜色改变其体积。从显示表面通过透明电极出射的光和在被反射电极（12）反射之后从显示表面出射的另一光的颜色再现范围基本上彼此一致。

FIG. 14