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(54) **Liquid crystal display device**

(57) A liquid crystal display device comprises a liquid crystal layer (15), an alignment layer (13, 14) orientating the liquid crystal layer, and a driving circuit (1802) driving the liquid layer, with the alignment layer (13, 14) divided into a plurality of regions constituted of specified figures each having a recognizable size, and the directions of orientations in adjacent regions made so as to

differ from each other. This makes it difficult to recognize a displayed image from directions other than that from the front of the display, and allows a fixed pattern to be seen when the display is viewed from directions other than that from the front, which is applied to provide a fixed display such as a figure or a trade name of a product.

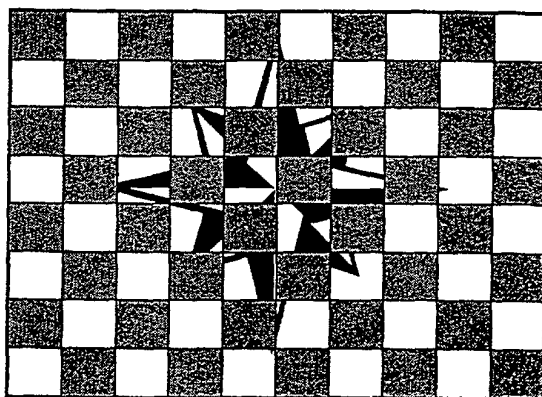


Fig. 7



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EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			G02F G09G
Place of search MUNICH		Date of completion of the search 30 July 2003	Examiner Cossu, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03.82 (P04C01)



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EUROPEAN SEARCH REPORT

Application Number
EP 01 10 0092

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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E	<p>--- EP 1 154 307 A (MANNESSMANN VDO AG) 14 November 2001 (2001-11-14)</p> <p>* column 1, line 3 - column 2, line 24 *</p> <p>* claims 1,2 *</p>	13,14, 16,18, 20,24	
P,A	<p>--- DE 199 25 985 A (BOSCH GMBH ROBERT) 14 December 2000 (2000-12-14)</p> <p>* column 1, line 19 - line 59 *</p> <p>* column 2, line 33 - column 3, line 64 *</p> <p>* column 4, line 43 - line 50 *</p> <p>* claims 1,7,8 *</p>	13,14, 16,18, 20-22,24	
A	<p>--- PATENT ABSTRACTS OF JAPAN vol. 1995, no. 11, 26 December 1995 (1995-12-26) & JP 07 199143 A (TOSHIBA CORP), 4 August 1995 (1995-08-04) * abstract *</p> <p>-----</p>	13,14, 16,18, 20,22	
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 30 July 2003	Examiner Cossu, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p>		<p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>	

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims 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 the first ten claims.

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:



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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 01 10 0092

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: 1-12, 19

The first invention relates to a liquid crystal display comprising:

1. a liquid crystal layer;
2. alignment layers sandwiching and orientating said crystal layer;

characterised in that

3. surfaces of said alignment layers are divided into a plurality of regions with different orientations

2. Claims: 13-18, 20-25

The second invention pertains to a display comprising

1. a liquid crystal layer;
2. alignment layers sandwiching and orientating said crystal layer;
3. driving circuit for said liquid crystal layer

characterised in that

4. an image formed from said driving circuit is displayed to the normal direction

and

5. a fixed image independent of said driving circuit is displayed to oblique directions.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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30-07-2003

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

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专利名称(译)	液晶显示装置		
公开(公告)号	EP1116990A3	公开(公告)日	2003-10-01
申请号	EP2001100092	申请日	2001-01-11
[标]申请(专利权)人(译)	株式会社东芝		
申请(专利权)人(译)	株式会社东芝		
当前申请(专利权)人(译)	株式会社东芝		
[标]发明人	TAKATO KOKI NAKAMURA SEIICHI		
发明人	TAKATO, KOKI NAKAMURA, SEIICHI		
IPC分类号	G02F1/13 G02F1/133 G02F1/1333 G02F1/1337 G02F1/1347 G02F1/137 G02F1/139 H04M1/725 H04B1/38 G06F1/16 G09F9/35		
CPC分类号	G02F1/1323 G02F1/133753 G02F1/1347 G02F2001/133374 G02F2001/133757 H04M1/72519		
优先权	2000006073 2000-01-11 JP 2000376914 2000-12-12 JP		
其他公开文献	EP1116990B1 EP1116990A2		
外部链接	Espacenet		

摘要(译)

一种液晶显示装置，包括液晶层（15），使液晶层取向的取向层（13,14），以及驱动液体层的驱动电路（1802），取向层（13,14）分开多个区域由具有可识别尺寸的特定图形构成，并且相邻区域中的取向方向彼此不同。这使得难以从显示器前面以外的方向识别显示的图像，并且当从正面以外的方向观看显示时允许看到固定的图案，这被应用于提供固定的显示诸如产品的图形或商品名称。

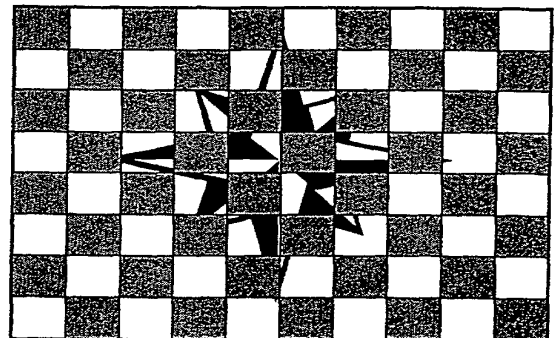


Fig. 7