

9704847-4

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| (51) International Patent Classification <sup>6</sup> :<br><b>G02F 1/1337</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>A1</b>                                                                                                                                   | (11) International Publication Number: <b>WO 96/24880</b>      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                             | (43) International Publication Date: 15 August 1996 (15.08.96) |
| (21) International Application Number: <b>PCT/GB96/00107</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (81) Designated States: CA, CN, GB, JP, KR, <u>SG</u> US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). |                                                                |
| (22) International Filing Date: <b>22 January 1996 (22.01.96)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                             |                                                                |
| (30) Priority Data:<br><b>9502635.7</b> <b>10 February 1995 (10.02.95)</b> <b>GB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Published<br>With international search report.                                                                                              |                                                                |
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| (54) Title: <b>LIQUID CRYSTAL DEVICE ALIGNMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                             |                                                                |
| (57) Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                             |                                                                |
| <p>A liquid crystal display cell comprises two cell walls spaced apart to enclose a layer of liquid crystal material. The cell walls carry electrode structures, e.g. arranged in rows and columns to give an x,y matrix of addressable elements or pixels. The liquid crystal material is aligned by a grating (grooved) structure on one or both cell walls. This grating structure is a bigrating with one symmetrical grating and an asymmetric grating which may be orthogonal to the symmetric grating. The grooves of the asymmetric grating varying their depth or asymmetry along the lengths to give a locally varying pretilt whose longer range average provides a pretilt in a preferred range, e.g. about 2-24°.</p> |                                                                                                                                             |                                                                |