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(72) Inventors:
 • **Roitman, Daniel B.**
Menlo Park, California 94025 (US)
 • **Antoniadis, Homer**
Mountain View, California 94040 (US)

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(74) Representative: **Liesegang, Eva et al**
Forrester & Boehmert,
Pettenkoferstrasse 20-22
80336 München (DE)

(71) Applicant: **Agilent Technologies, Inc. (a Delaware corporation)**
Palo Alto, CA 94303 (US)

(54) **Oled display device and method for patterning cathodes of the device**

(57) An OLED display device (20; 62; 82) and a method of fabricating the device utilize a patterned layer of conductive pads (26, 28 and 30; 64, 66 and 68) formed over a substrate (22) to fabricate a cathode layer (32, 34, 36 and 38; 70) without the need to subsequently pattern the cathode layer to create individually addressable cathodes. The design of the OLED display device is such that the cathode layer is positioned below the anode layer (42). The OLED display device may be configured to emit light through the substrate or through the top layer, i.e., the anode layer. In a first embodiment, the

conductive pads have sharp edges that effectively pattern the cathode layer when it is formed over the pads. In a second embodiment, the conductive pads do not include sharp edges. In this embodiment, the cathode layer is made of a composite material, which includes cathode components and non-conducting components. The composite material allows the resulting cathode layer to have the desired characteristics to effectively inject electrons vertically into the EL region (40) of the device, while limiting lateral conduction between the conductive pads.

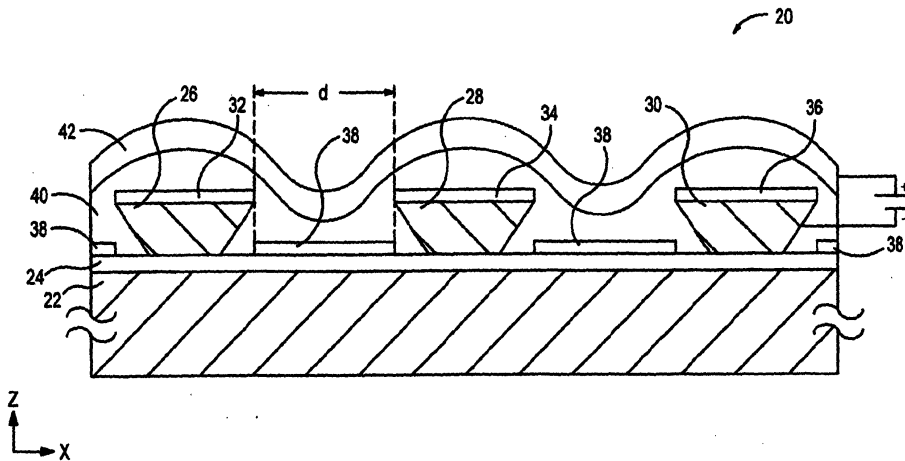


FIG. 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 10 0987

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)
X	EP 0 704 915 A (OKI ELECTRIC IND CO LTD) 3 April 1996 (1996-04-03) * column 3, line 54 - column 4, line 39; claims 43,44; figures 3,4 * -----	1,7,9	H01L51/20 H01L27/00
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E	EP 1 191 823 A (SEIKO EPSON CORP) 27 March 2002 (2002-03-27) * paragraphs '0062!', '0063!'; figure 9 * -----	1,7,9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			H01L
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 June 2004	Examiner De Laere, A
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)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 01 10 0987

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
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21-06-2004

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专利名称(译)	Oled显示装置和用于使装置的阴极分离的方法		
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[标]申请(专利权)人(译)	安捷伦科技有限公司		
申请(专利权)人(译)	安捷伦科技股份有限公司.特拉华州公司		
当前申请(专利权)人(译)	AVAGO TECHNOLOGIES ECBU IP (SINGAPORE) PTE. LTD.		
[标]发明人	ROITMAN DANIEL B ANTONIADIS HOMER		
发明人	ROITMAN, DANIEL B. ANTONIADIS, HOMER		
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CPC分类号	H01L27/3281 H01L51/5221 H01L2251/5315		
优先权	09/528413 2000-03-17 US		
其他公开文献	EP1134816A2		
外部链接	Espacenet		

摘要(译)

OLED显示装置 (20; 62; 82) 和制造该装置的方法利用在基板 (22) 上形成的导电垫 (26,28和30; 64,66和68) 的图案化层来制造阴极层 (32,34,36和38; 70) 无需随后对阴极层进行图案化以产生可单独寻址的阴极。OLED显示装置的设计使得阴极层位于阳极层 (42) 下方。OLED显示装置可以被配置为通过基板或通过顶层 (即, 阳极层) 发光。在第一实施例中, 导电焊盘具有尖锐边缘, 当阴极层形成在焊盘上时, 该边缘有效地图案化阴极层。在第二实施例中, 导电垫不包括尖锐边缘。在该实施例中, 阴极层由复合材料制成, 其包括阴极部件和非导电部件。复合材料允许所得阴极层具有所需的特性, 以有效地将电子垂直注入器件的EL区 (40) , 同时限制导电垫之间的横向传导。

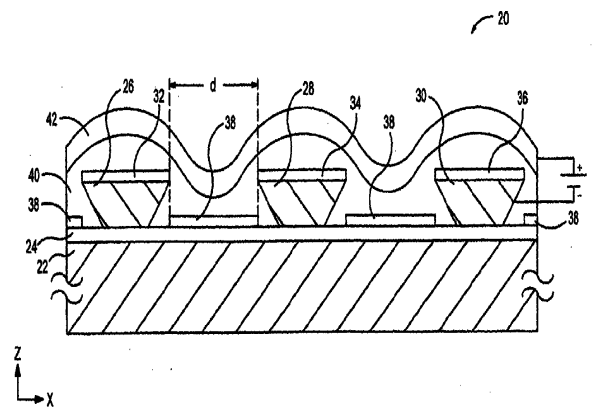


FIG. 2