US 20240215379A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0215379 A1**

Wu et al. (43) **Pub. Date: Jun. 27, 2024**

(54) **DISPLAY PANEL, DISPLAY DEVICE, AND MANUFACTURING METHOD OF DISPLAY PANEL**

(71) Applicant: **SHENZHEN CHINA STAR OPTOELECTRONICS SEMICONDUCTOR DISPLAY TECHNOLOGY CO., LTD.**, Shenzhen, Guangdong (CN)

(72) Inventors: **Fanjing Wu**, Shenzhen, Guangdong (CN); **Jingyuan Hu**, Shenzhen, Guangdong (CN)

(73) Assignee: **SHENZHEN CHINA STAR OPTOELECTRONICS SEMICONDUCTOR DISPLAY TECHNOLOGY CO., LTD.**, Shenzhen, Guangdong (CN)

(21) Appl. No.: **17/760,302**

(22) PCT Filed: **Jul. 29, 2022**

(86) PCT No.: **PCT/CN2022/109085**

§ 371 (c)(1),
(2) Date: **Aug. 7, 2022**

(30) **Foreign Application Priority Data**

Jul. 20, 2022 (CN) 202210856542.3

Publication Classification

(51) **Int. Cl.**
H10K 59/80 (2006.01)
H10K 59/12 (2006.01)
H10K 59/124 (2006.01)

(52) **U.S. Cl.**
CPC ... ***H10K 59/80516*** (2023.02); ***H10K 59/1201*** (2023.02); ***H10K 59/124*** (2023.02)

(57) **ABSTRACT**

A display panel, a display device, and a manufacturing method of the display panel are provided. The display panel includes a base substrate, a thin film transistor layer, a planarization layer, an anode layer, and a cathode layer. The anode layer includes an anode and a connection portion. A first protruding portion protrudes from the connection portion. The first protruding portion and the planarization layer form an undercut structure. The cathode layer is electrically connected to the connection portion. The undercut structure and the anode layer are formed simultaneously during being performed a patterning process, thereby reducing a number of photomasks.