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Sugawara et al.

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(54) **X-RAY FLAT PANEL DETECTOR**

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(52) **U.S. Cl.** **378/19**; 378/98; 378/98.8; 378/167; 378/189; 378/207; 250/206; 250/206.1; 250/206.2; 250/206.3; 250/580; 250/591; 257/546
(58) **Field of Search** .... 250/206, 206.1, 250/206.2, 206.3, 580, 591, 370.09, 370.14, 361 R; 348/294; 378/19, 98, 98.8, 167, 189; 438/56

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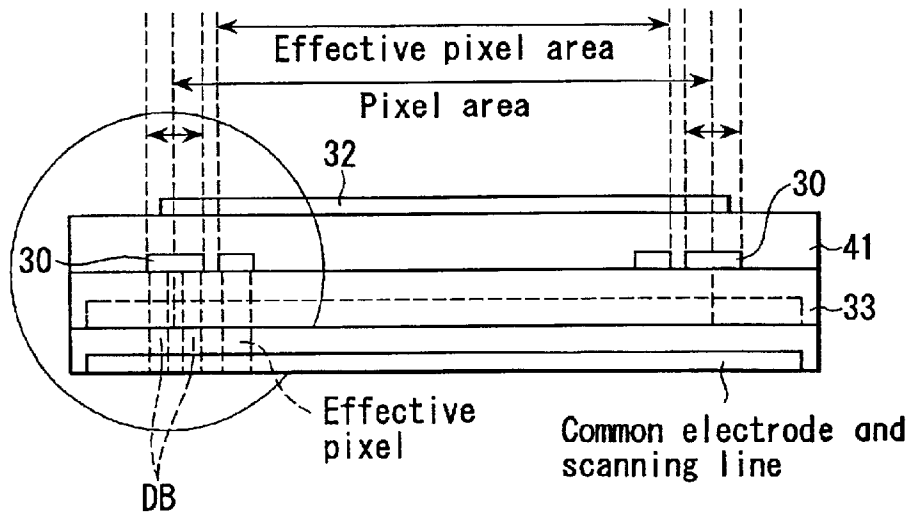
(57) **ABSTRACT**

An X-ray flat panel detector includes sensor elements constituted by a plurality of effective pixels that detect X-rays and a plurality of dummy pixels that are arranged adjacent to the effective pixel area and generate electrical signals irrelevant to X-rays, signal lines which read out electrical signals from the respective pixels, scanning lines which scan the respective pixels, a first electrostatic wiring line which distributes static electricity accumulated in the signal lines, and a second electrostatic wiring line which distributes static electricity accumulated in the scanning lines. A plurality of dummy pixels are classified into a DA area where noise superposed on the signal lines are removed and a DB area where noise superposed on the scanning lines are removed. The first and second electrostatic wiring lines are laid out around the sensor elements, and physically disconnected between the DA area and the DB area.

20 Claims, 16 Drawing Sheets

FIG. 1

Signal line side

(DA)

30

G

J

Scanning line side

(DB) Effective pixel area (DB)

IIIB

IIIB

H

(DA)

1

12

FIG. 2

12

Signal line side

G

Scanning line side

J

30

H

I

FIG. 3A

Effective pixel area

Pixel area

32

30

30

41

33

Effective
pixel

DB

Common electrode and
scanning line

FIG. 3B

X-ray

12

DB

Effective pixel

41   32

30

TFT

27   26

FIG. 4

Signal line side

Pad

(DA)

(DB)

Scanning line side

Pad

Effective pixel

Pad

(DB)

(DA)

Pad

121
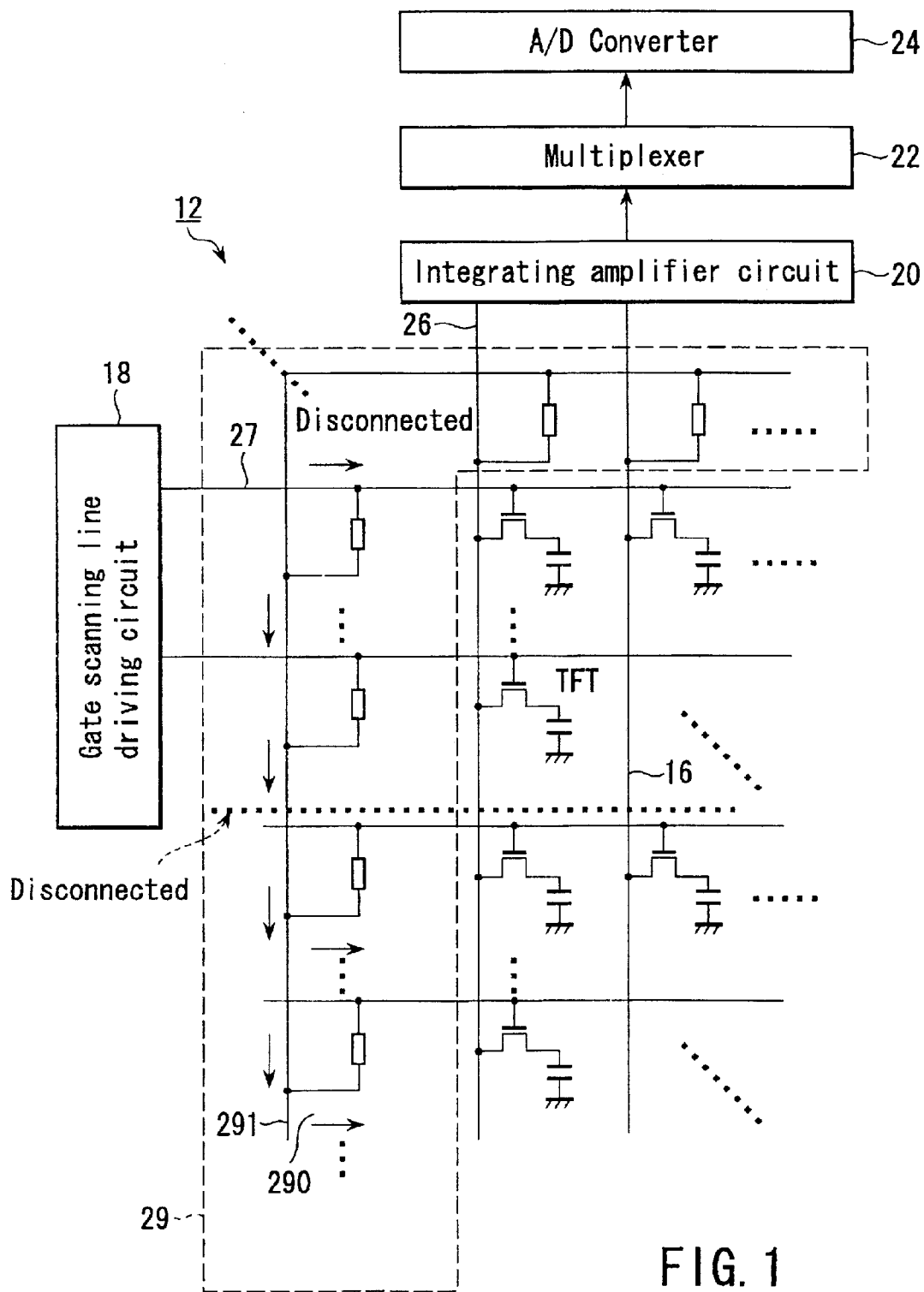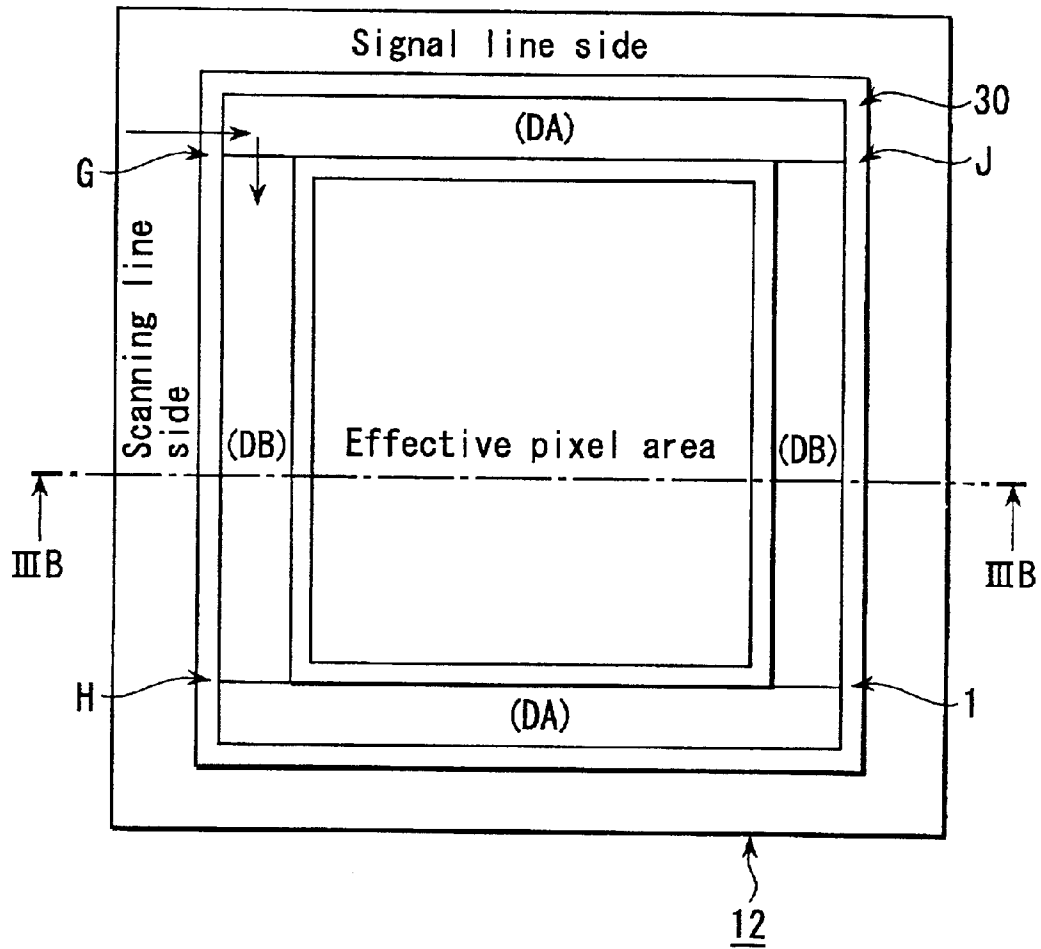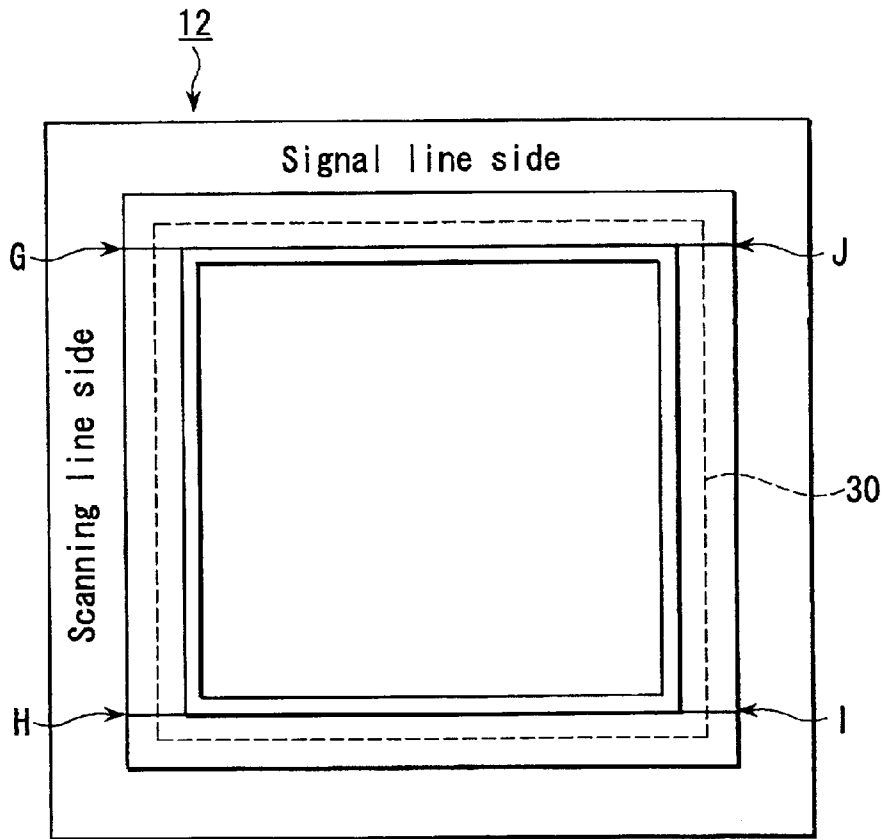
FIG. 5

DOCKET ALARM
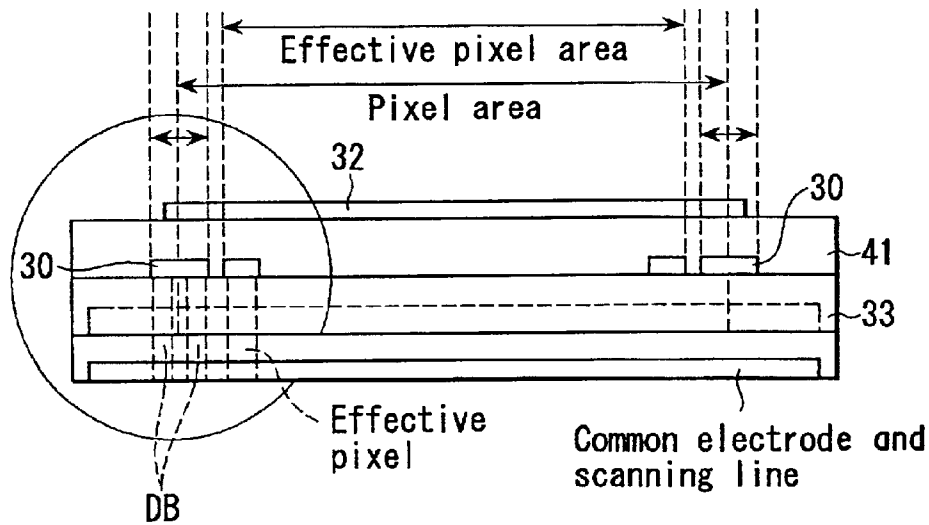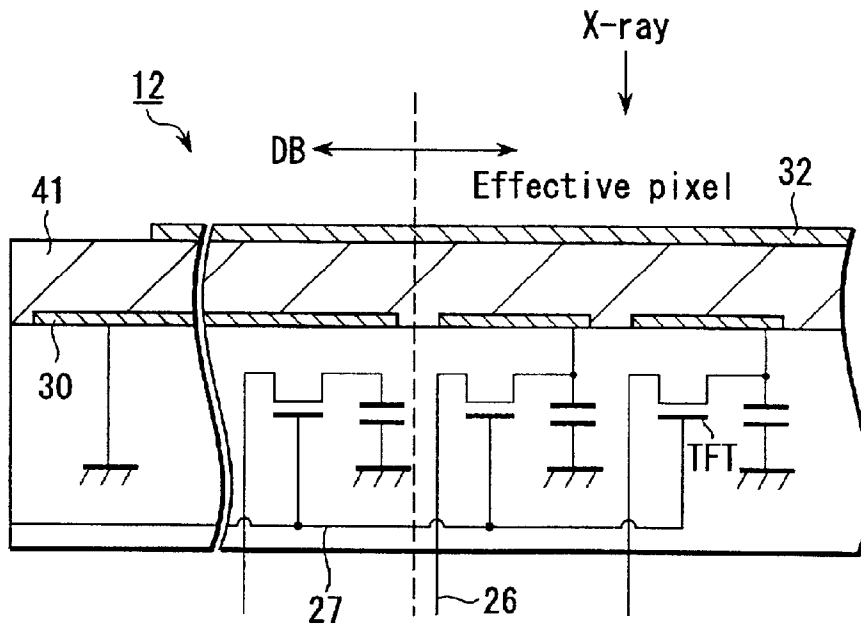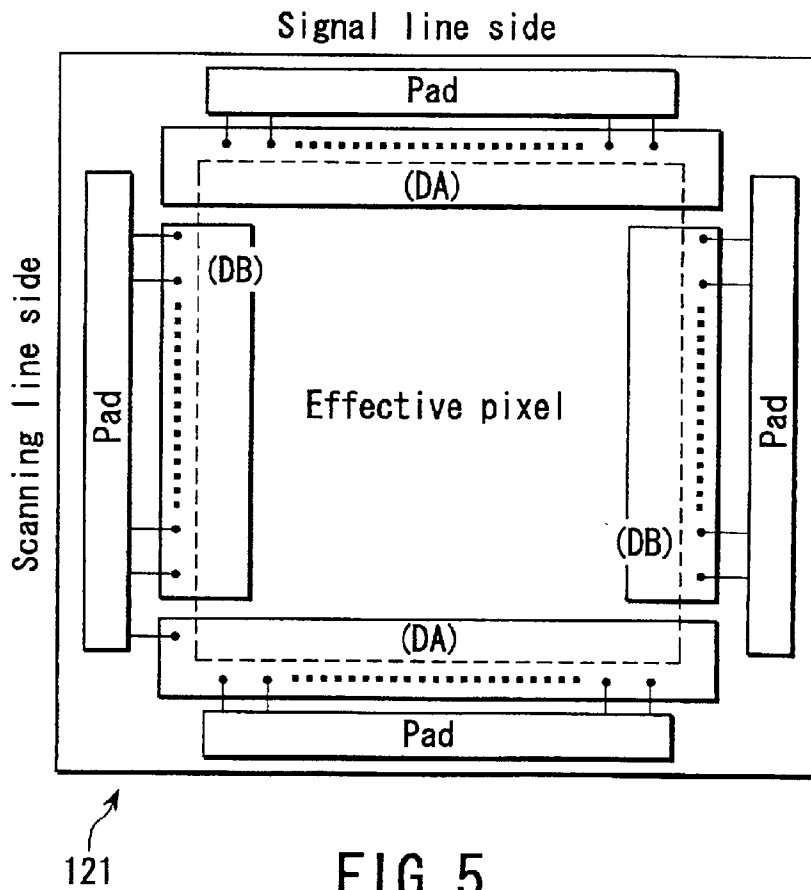
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