US007821502B2

(54) **TWO-DIMENSIONAL POSITION SENSOR**

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G06F 3/041 (2006.01)
G06F 3/044 (2006.01)

(52) **U.S. Cl.** 345/173; 178/18.06

(58) **Field of Classification Search** 345/156, 345/173–178; 178/18.01, 18.06
See application file for complete search history.

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(57)   **ABSTRACT**

A capacitive position sensor for determining the position of an object along first and second directions is described. The sensor comprises a substrate having an arrangement of electrodes mounted on a single surface thereof. The electrodes are arranged so as to define an array of sensing cells arranged in columns and rows to form a sensing area. Each of the sensing cell including a column sensing electrode and a row sensing electrode with the column sensing electrodes of sensing cells in the same column being electrically coupled together and the row sensing electrodes of sensing cells in the same row also being electrically coupled together. Row sensing electrodes of sensing cells at opposing ends of at least one of the rows are connected together by an electrical connection made outside of the sensing area so that there is no requirement for electrical connections to cross within the sensing area, thus providing a capacitive position sensor having a sensing area with electrodes on only one side of a substrate.

24 Claims, 8 Drawing Sheets
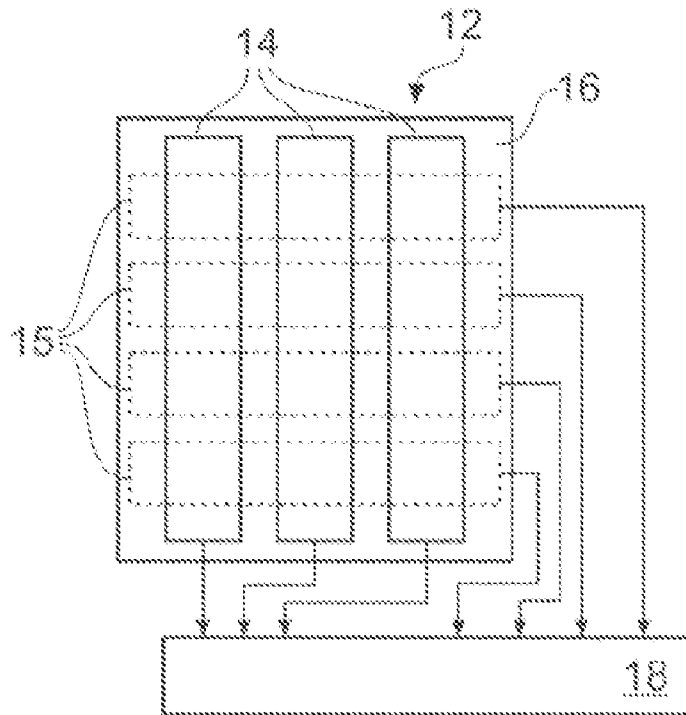
2

6

4 4 4
4 4 4
4 4 4
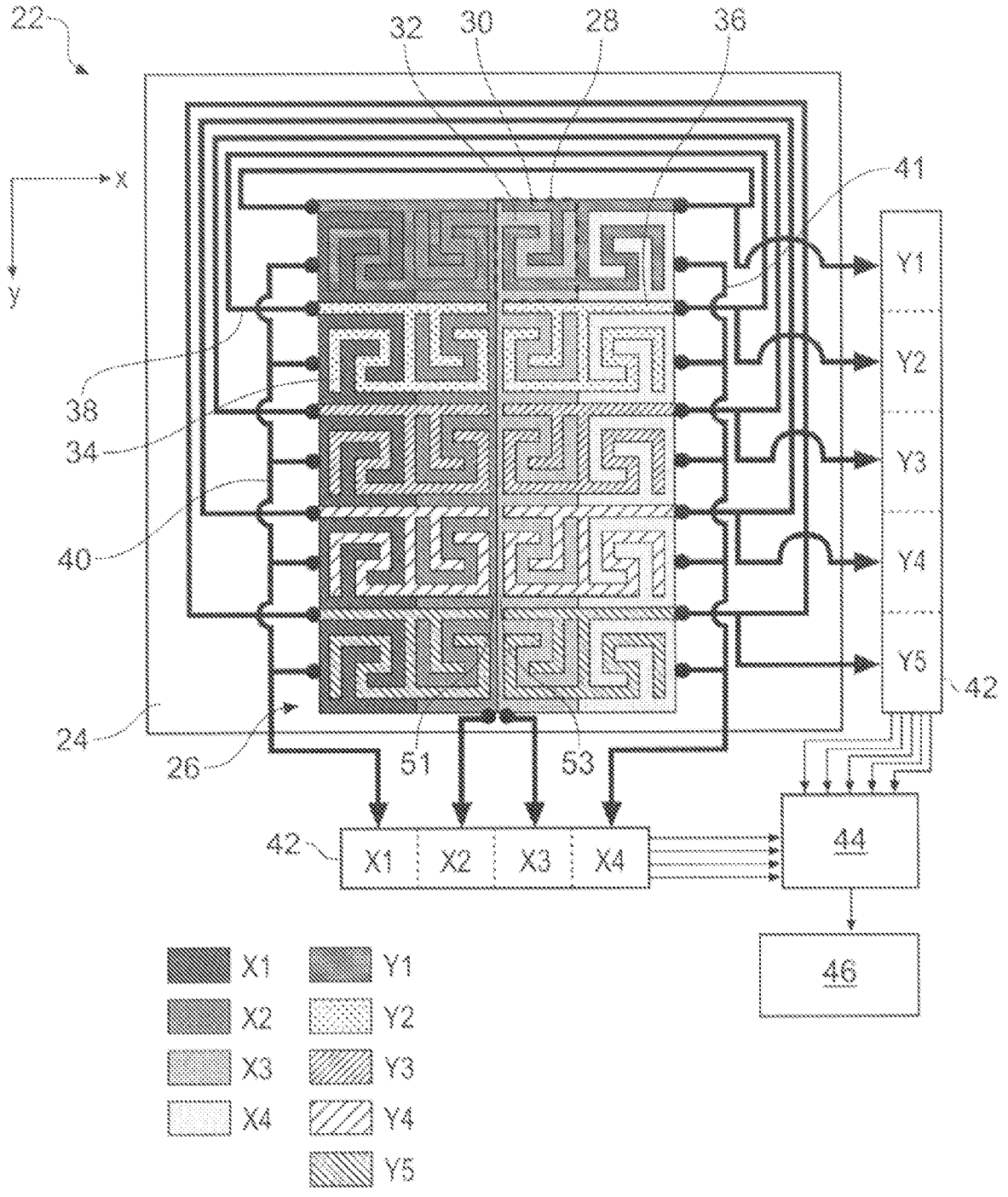4 4 4

8

Fig. 1 (PRIOR ART)

14   12   16

15

18
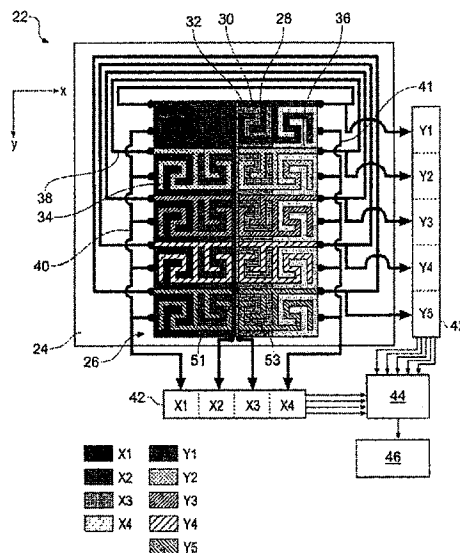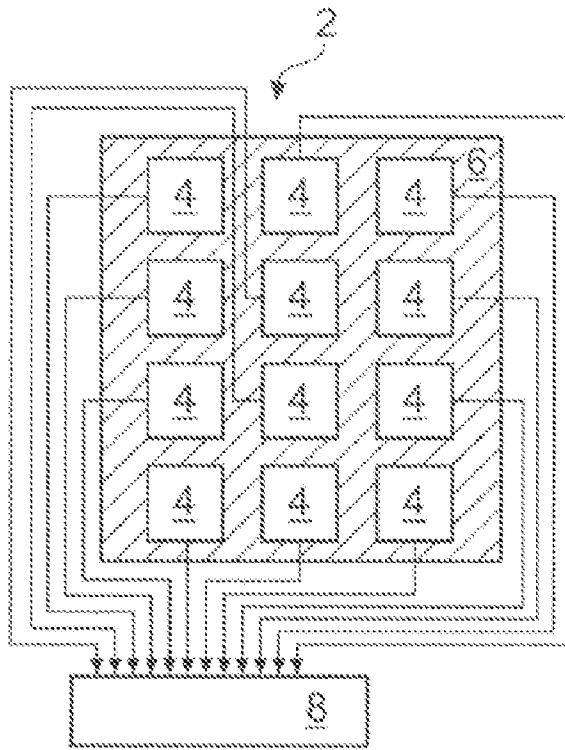
Fig. 2 (PRIOR ART)

Fig. 3

Fig. 4

Fig. 5A

Fig. 5B

1	2	3	4
5	6	7	8
9	0	ENTER	
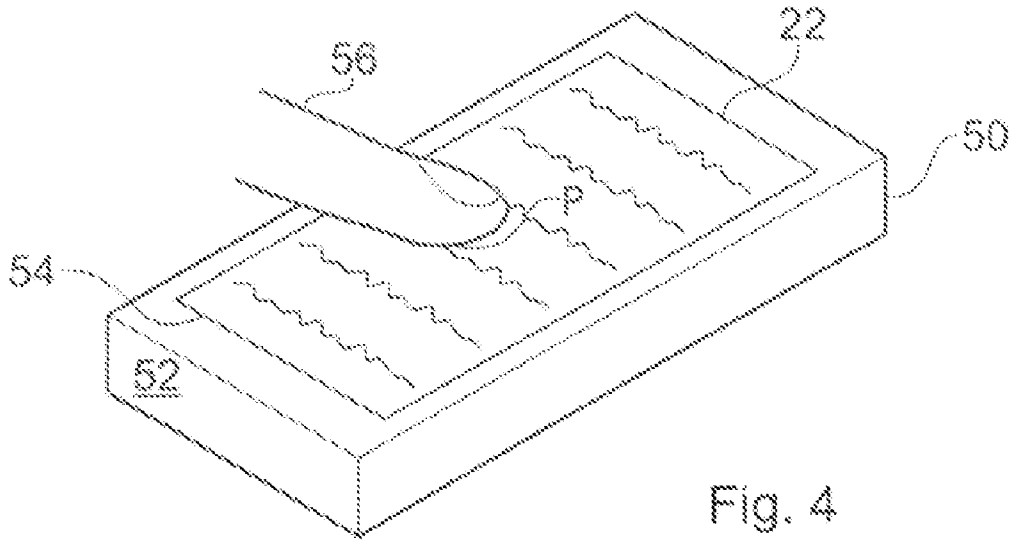
Fig. 6

DOCKET ALARM
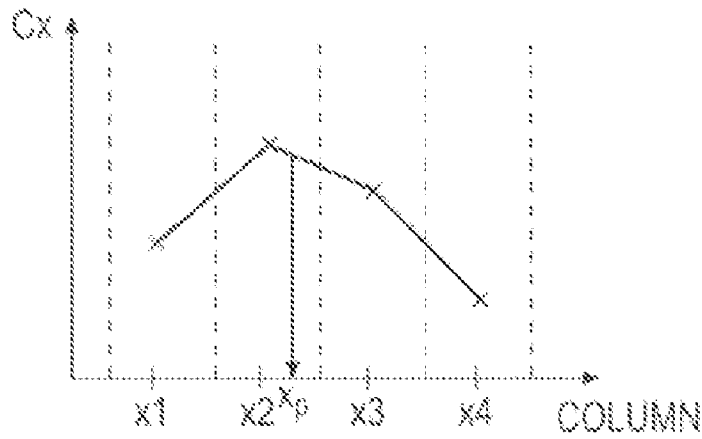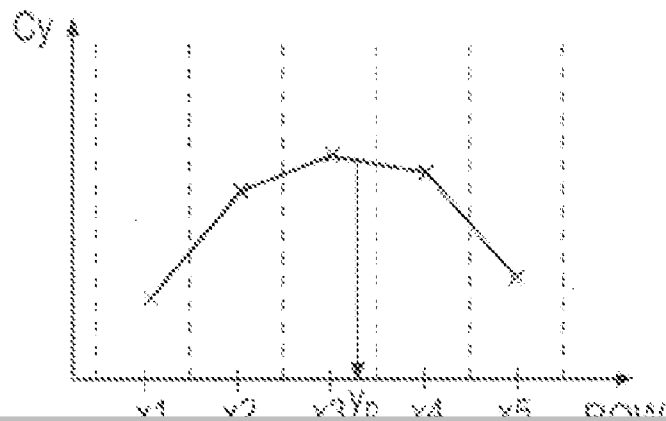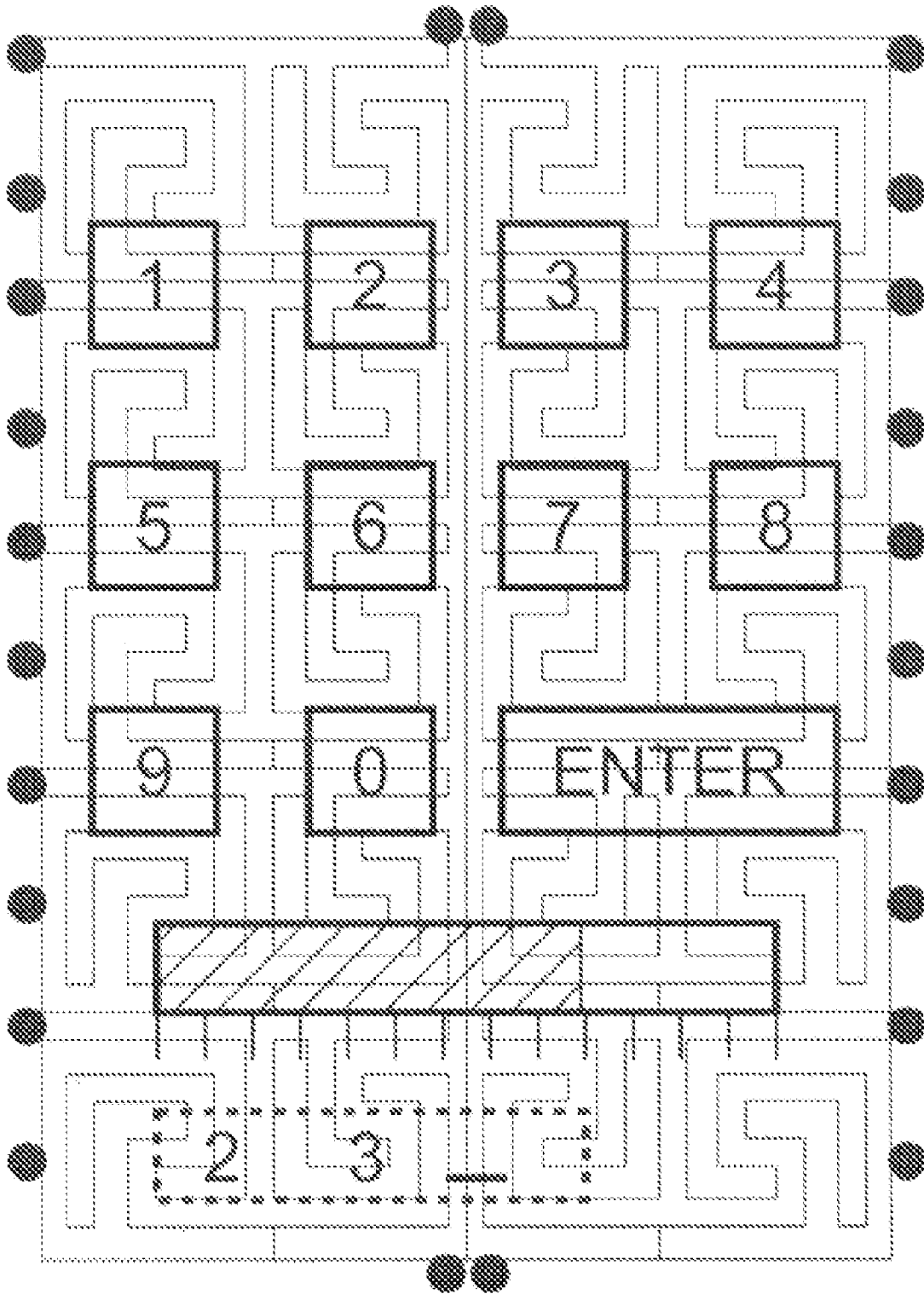
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