

(12) **United States Patent**  
**Philipp**

(10) **Patent No.:** **US 8,599,150 B2**  
(45) **Date of Patent:** **Dec. 3, 2013**

(54) **TOUCHSCREEN ELECTRODE CONFIGURATION**  
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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 276 days.  
(21) Appl. No.: **12/608,779**  
(22) Filed: **Oct. 29, 2009**

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(65) **Prior Publication Data**

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(51) **Int. Cl.**

**G06F 3/041** (2006.01)  
**G06K 11/06** (2006.01)  
**G08C 21/00** (2006.01)  
**G06F 3/045** (2006.01)  
**G06F 3/033** (2013.01)  
**G06F 3/044** (2006.01)

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(52) **U.S. Cl.**

USPC ..... 345/173; 178/18.01; 178/18.02;  
178/18.03; 178/18.05; 178/18.06; 178/19.03

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(58) **Field of Classification Search**

USPC ..... 345/173–178; 178/18.01–18.03, 18.05,  
178/18.06, 19.03

(57) **ABSTRACT**

A touchscreen includes touchscreen electrode elements distributed across an active area of a substrate, and the touchscreen overlays a display. The touchscreen electrode elements are configured to avoid creating moiré patterns between the display and the touchscreen, such as angled, wavy, zig-zag, or randomized lines. In a further example, the electrodes form a mesh pattern configured to avoid moiré patterns.

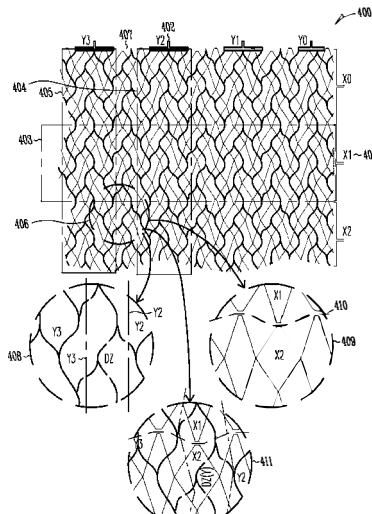
See application file for complete search history.

**11 Claims, 7 Drawing Sheets**

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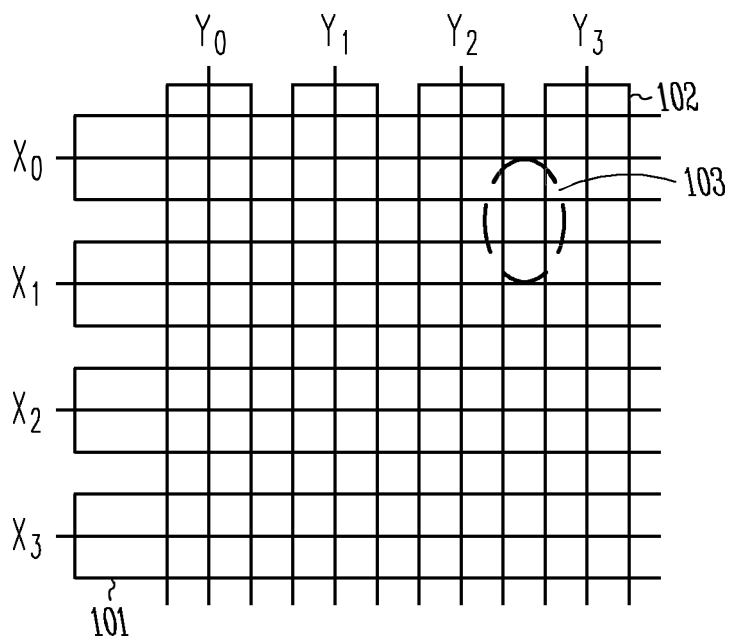
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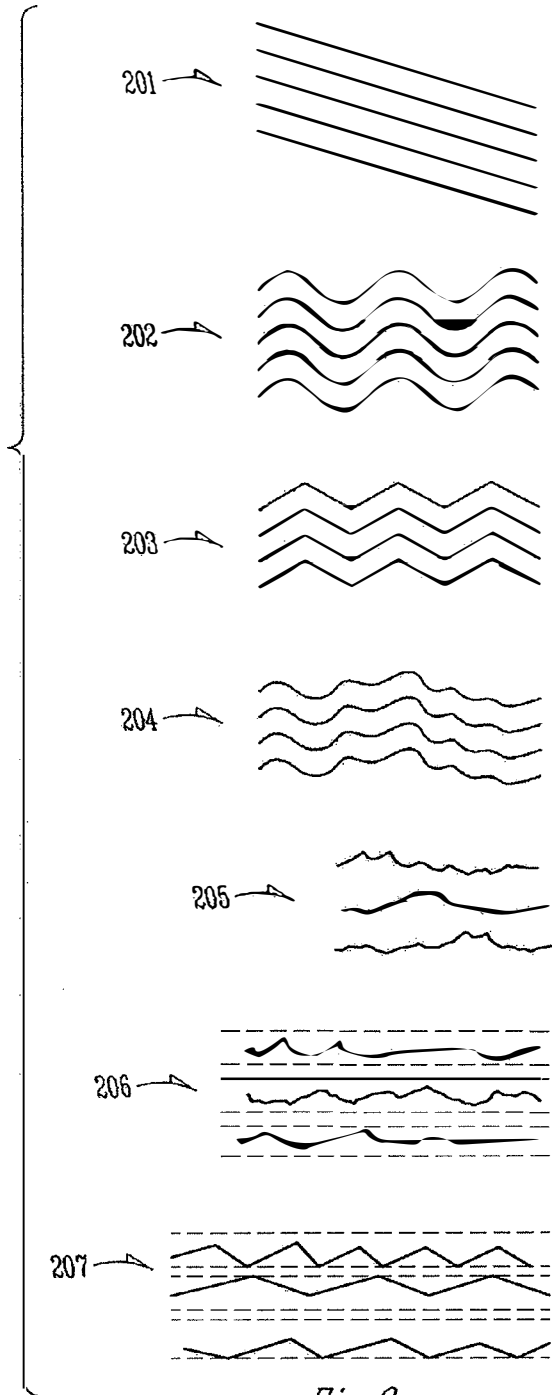
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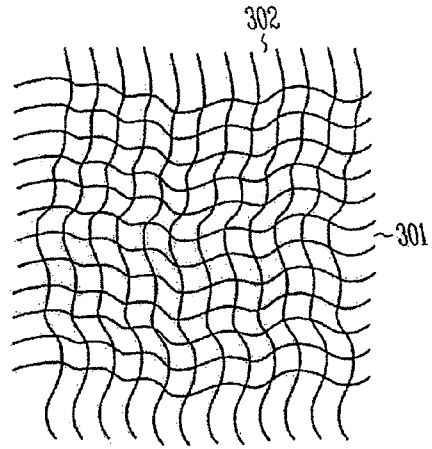
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*Fig. 1*



*Fig. 2*



*Fig. 3*

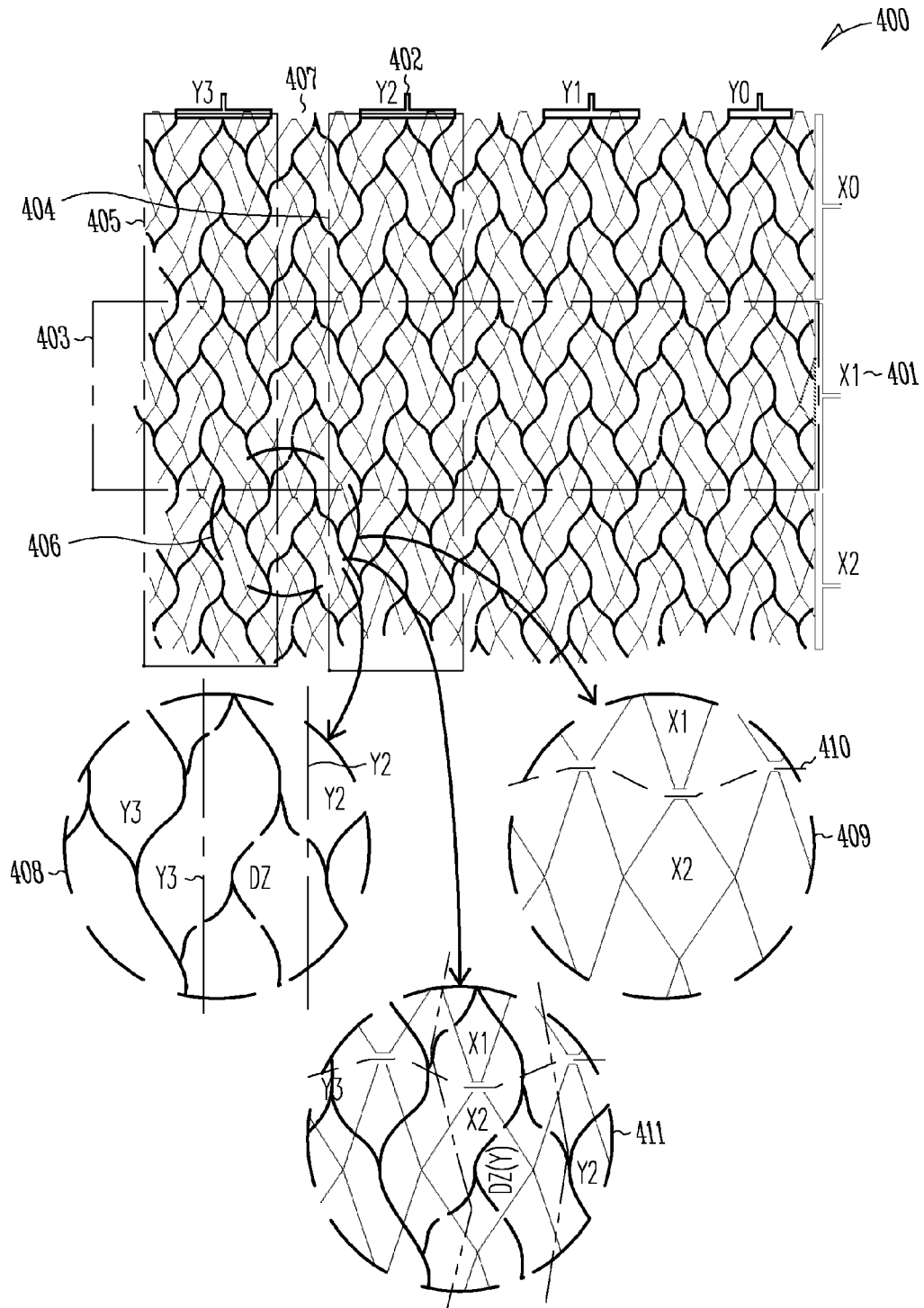


Fig. 4

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