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(12) **United States Patent**  
**Kang**

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(45) **Date of Patent:** **Sep. 9, 2008**

(54) **KEY INPUT DEVICE COMBINED WITH KEY DISPLAY UNIT AND DIGITAL APPLIANCE HAVING THE SAME**

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(75) Inventor: **Sang-woo Kang**, Seoul (KR)

(73) Assignee: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

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(65) **Prior Publication Data**

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(30) **Foreign Application Priority Data**

Feb. 4, 2005 (KR) ..... 10-2005-0010595

(51) **Int. Cl.**  
**H03M 11/00** (2006.01)

(52) **U.S. Cl.** ..... **341/23**; 345/170; 341/20;  
379/433.04; 379/433.07

(58) **Field of Classification Search** ..... 341/20,  
341/22, 23; 345/170; 379/433.04, 433.07  
See application file for complete search history.

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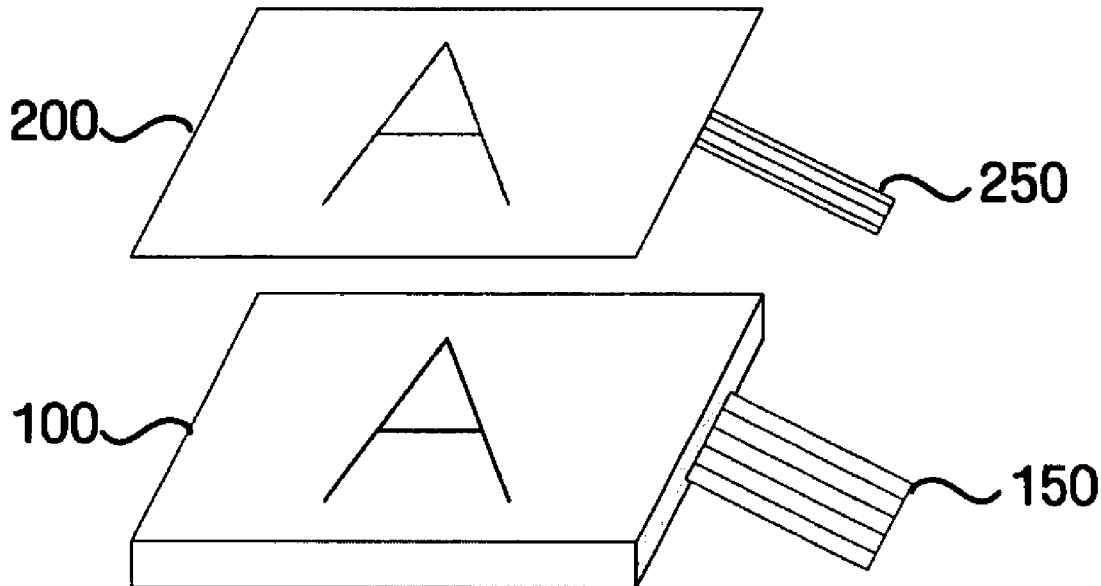
\* cited by examiner

*Primary Examiner*—Albert K. Wong  
(74) *Attorney, Agent, or Firm*—Sughrue Mion, PLLC

(57) **ABSTRACT**

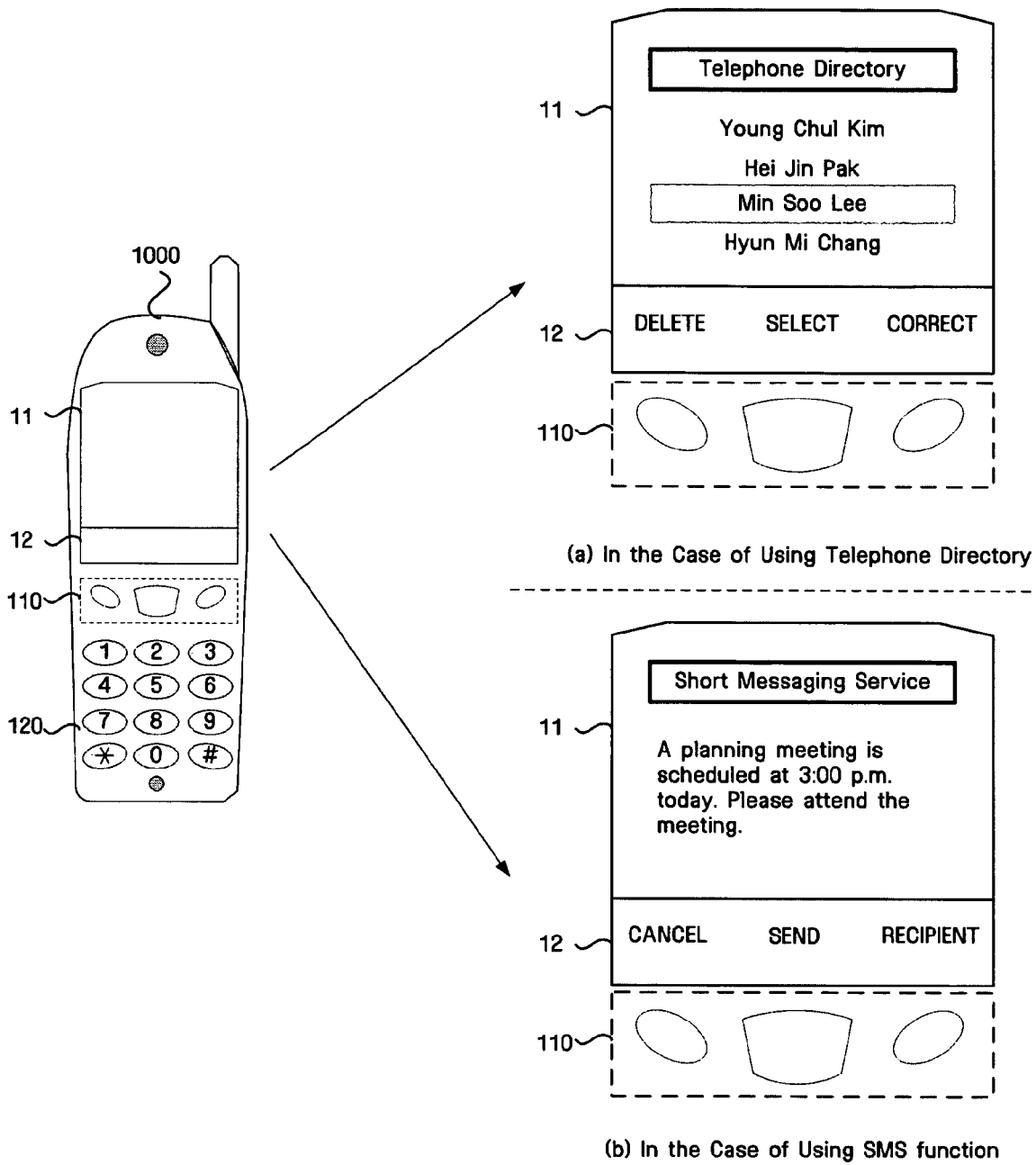
A key input device combined with a key display unit and a digital appliance having the same are disclosed. The key input device includes a key display unit for displaying a character or an image that identifies a key, a touch sensing unit that moves down and up by a pressure applied to this key, and a signal generation unit for generating an electric signal in accordance with the pressure applied to the key, wherein the character or the image displayed on the key display unit can be changed.

**22 Claims, 15 Drawing Sheets**

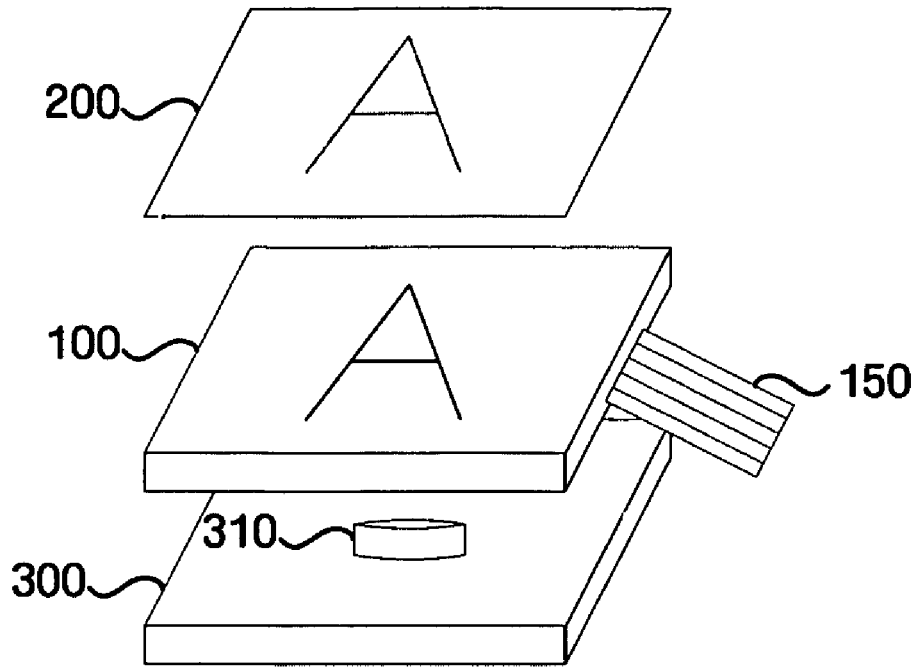


Apple Ex. 1037

FIG.1



**FIG.2A**



**FIG.2B**

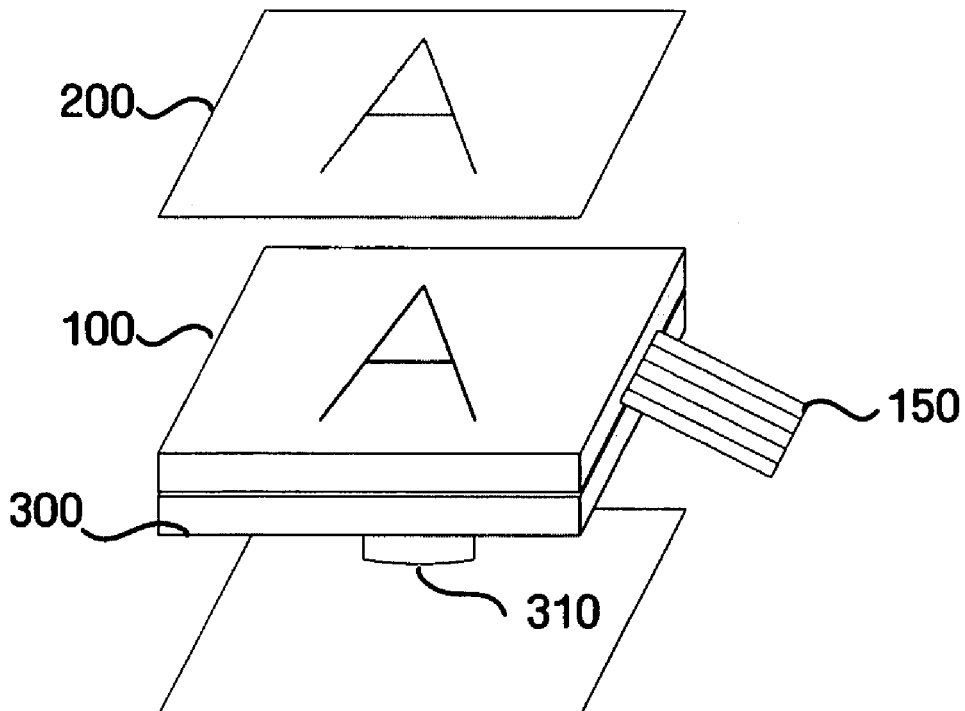


FIG.2C

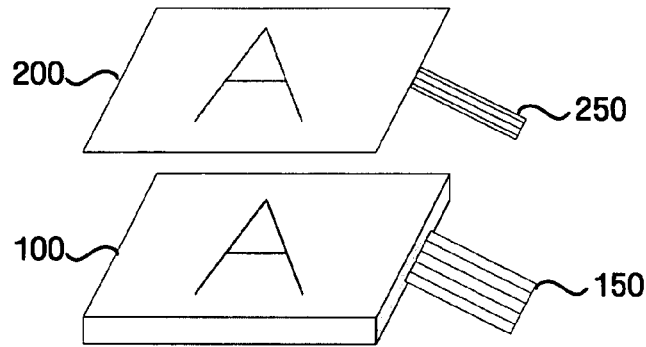


FIG.3A

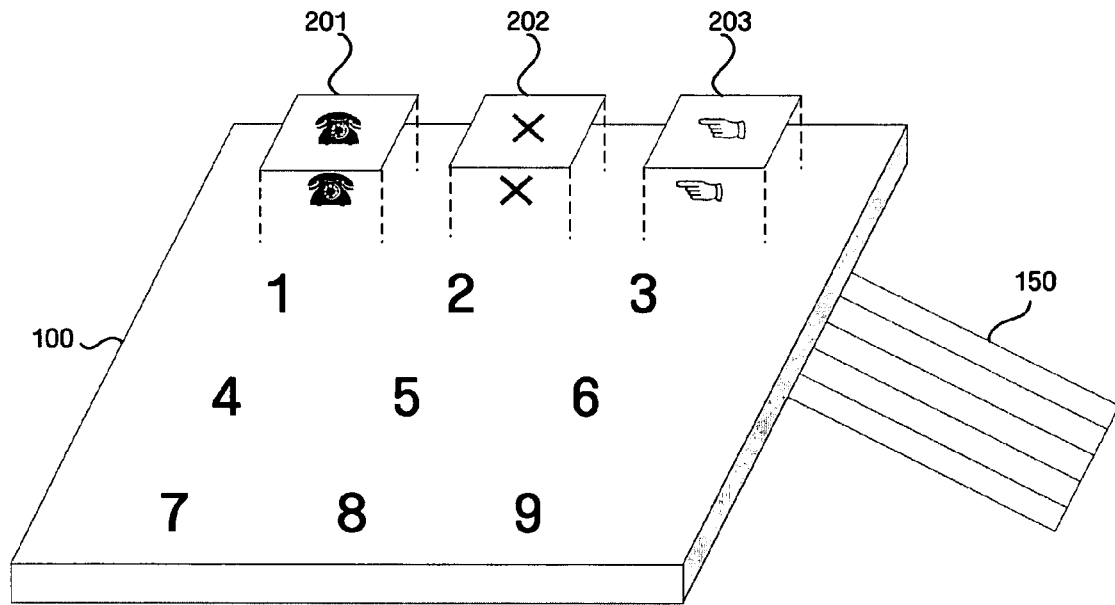


FIG.3B

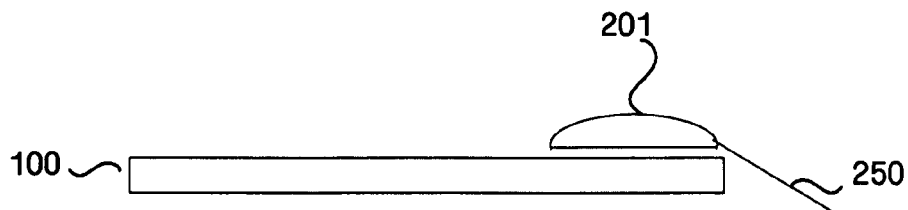


FIG.3C

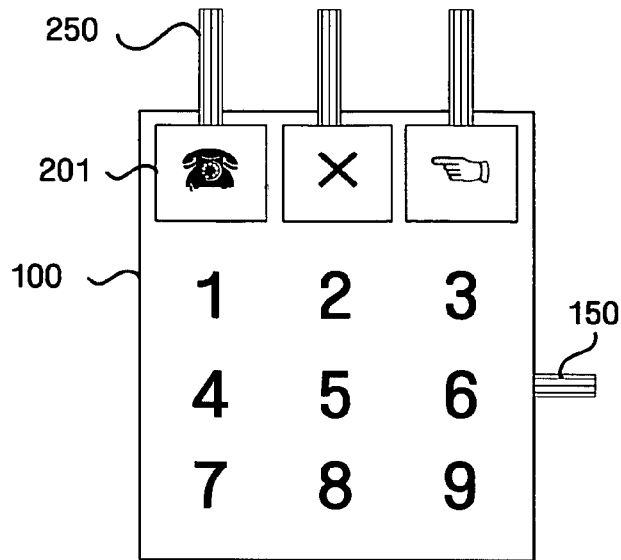


FIG.4A

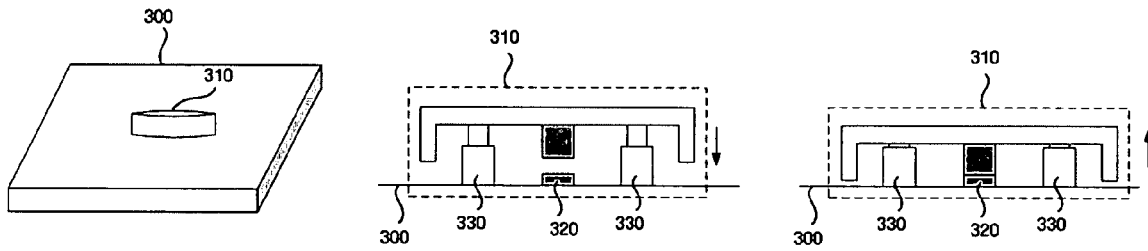
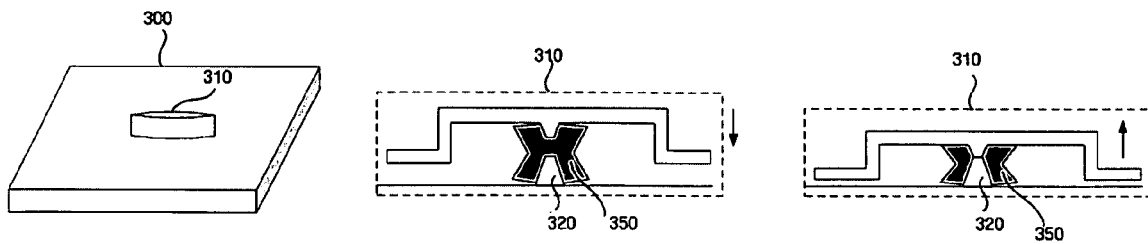


FIG.4B



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