



(12) **United States Patent**  
**Hong**

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(54) **APPARATUS FOR CONTACTLESS CHARGING OF MOBILE TERMINAL**

(75) Inventor: **Woong Sun Hong**, Suwon-si (KR)

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

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 244 days.

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(51) **Int. Cl.**  
**H02J 7/00** (2006.01)  
**H02J 7/02** (2006.01)  
**H01F 5/00** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **H02J 7/025** (2013.01); **H01F 5/003** (2013.01)  
USPC ..... **320/108**; 320/107; 320/110; 320/111; 320/112

(58) **Field of Classification Search**  
CPC ..... Y02J 7/025  
USPC ..... 320/108  
See application file for complete search history.

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*Primary Examiner* — Edward Tso

*Assistant Examiner* — Ahmed Omar

(74) *Attorney, Agent, or Firm* — Jefferson IP Law, LLP

(57) **ABSTRACT**

A contactless charging apparatus of a portable terminal is provided. The contactless charging apparatus of a portable terminal includes a main circuit board, a rectifying unit, a charging unit, and a secondary coil unit mounted on the main circuit board for generating an electromotive force. The secondary coil unit may be formed on the main circuit board in a patterning process instead of an existing copper line coil. A coil layer formed in the patterning process generates an electromotive force induced by a magnetic induction field created by a contactless charger, and a direct current is applied to a battery to charge the battery using the rectifying unit and the charging unit.

**7 Claims, 6 Drawing Sheets**

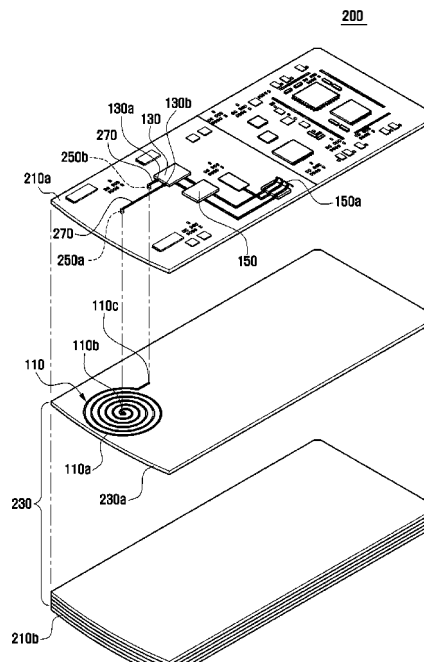


FIG. 1

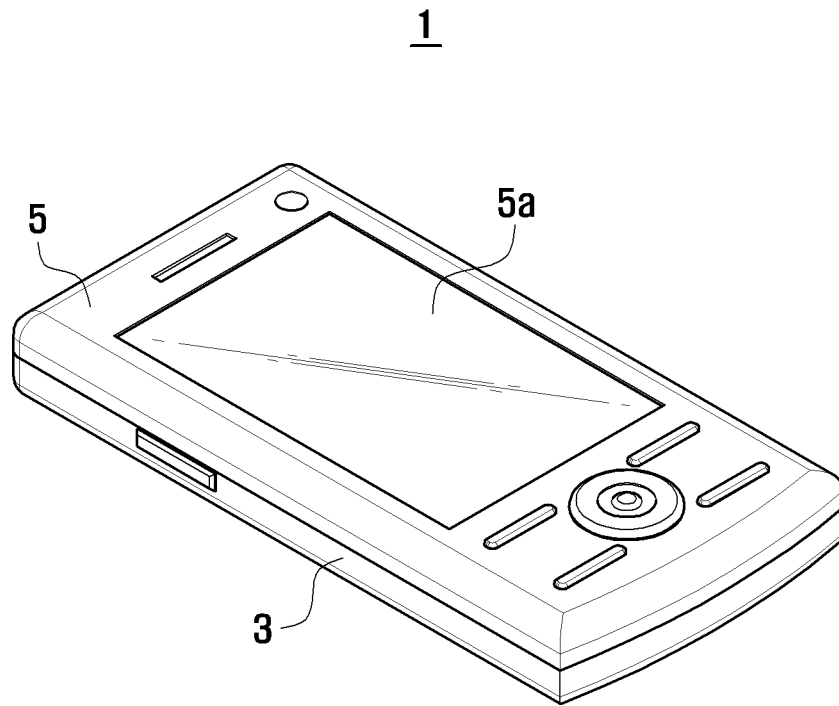


FIG. 2

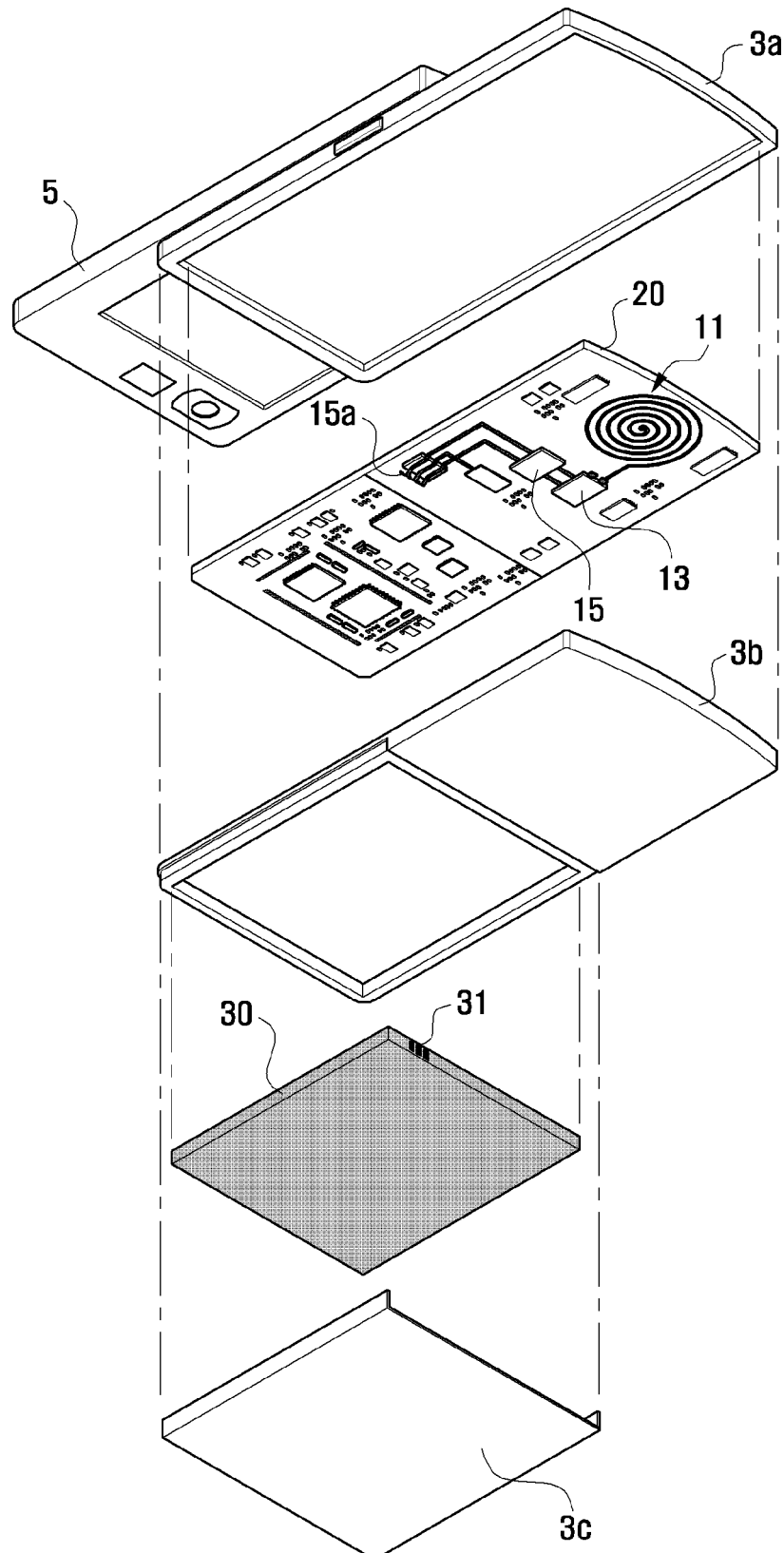


FIG. 3

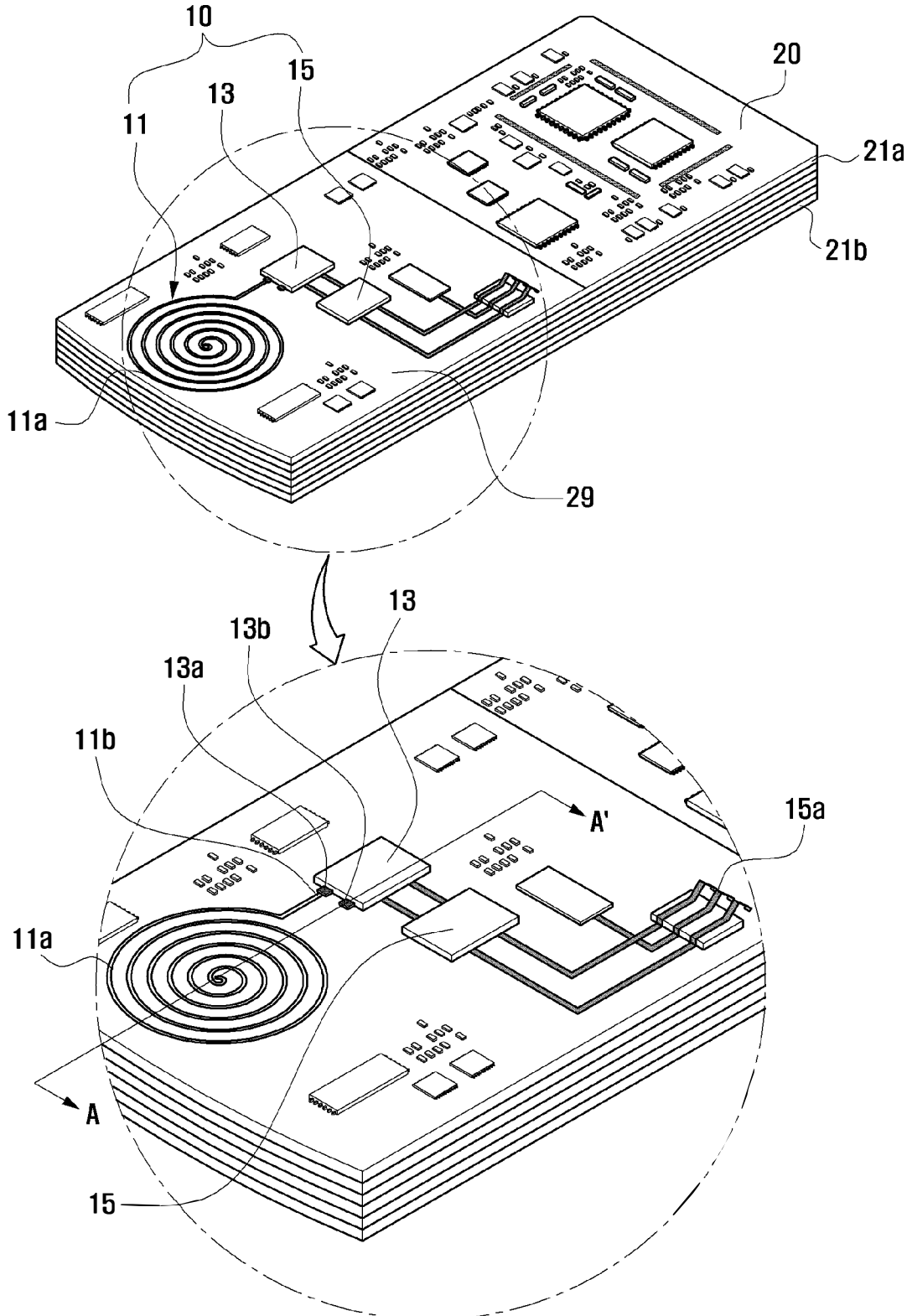
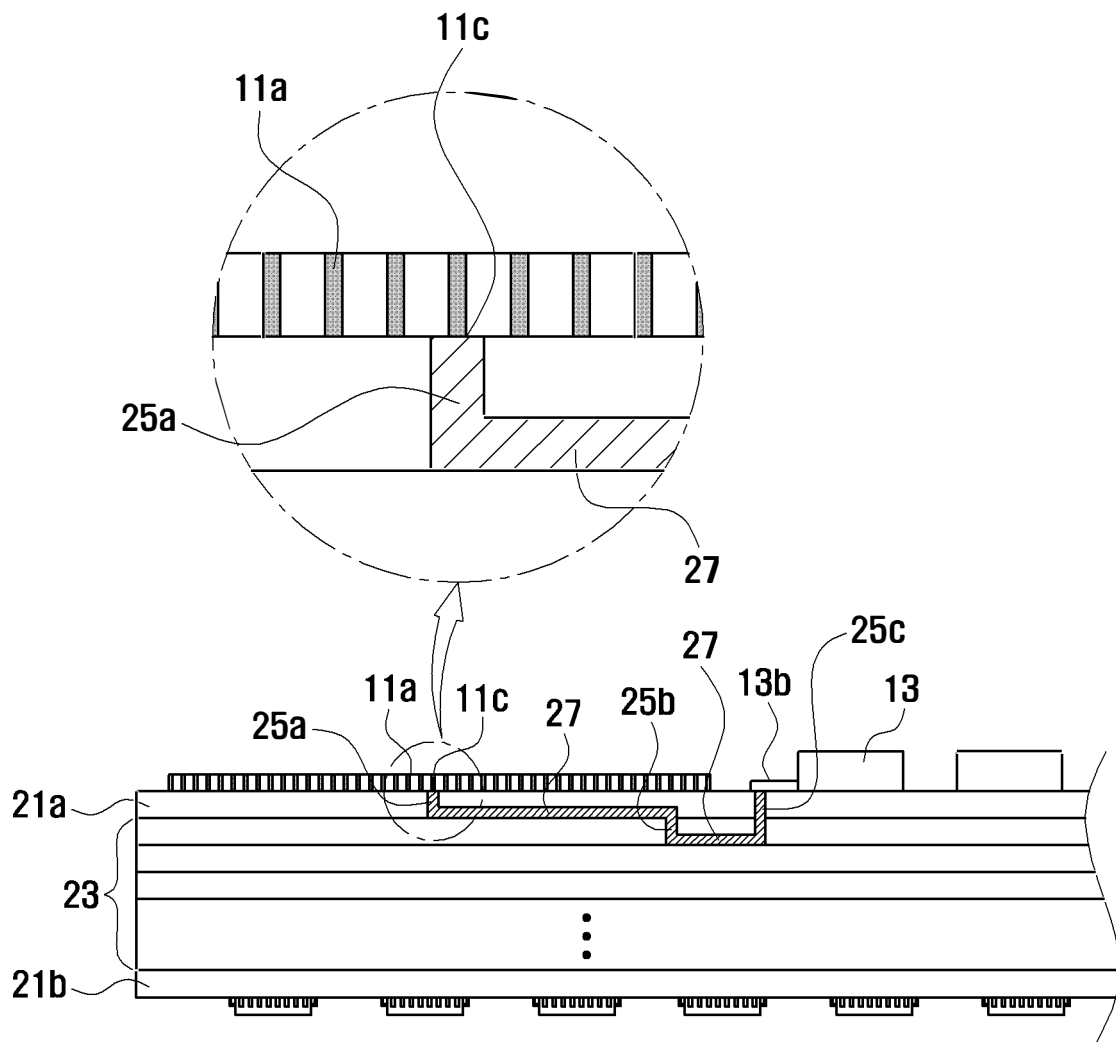


FIG. 4



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