

(12) **United States Patent**  
**Park et al.**

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(54) **PORTABLE TERMINAL HAVING A WIRELESS CHARGER COIL AND AN ANTENNA ELEMENT ON THE SAME PLANE**

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

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 479 days.

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(51) **Int. Cl.**  
**H01M 10/46** (2006.01)  
**H02J 7/00** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **H02J 7/00** (2013.01)  
USPC ..... **320/108**

(58) **Field of Classification Search**  
USPC ..... 320/107, 108, 114, 115  
See application file for complete search history.

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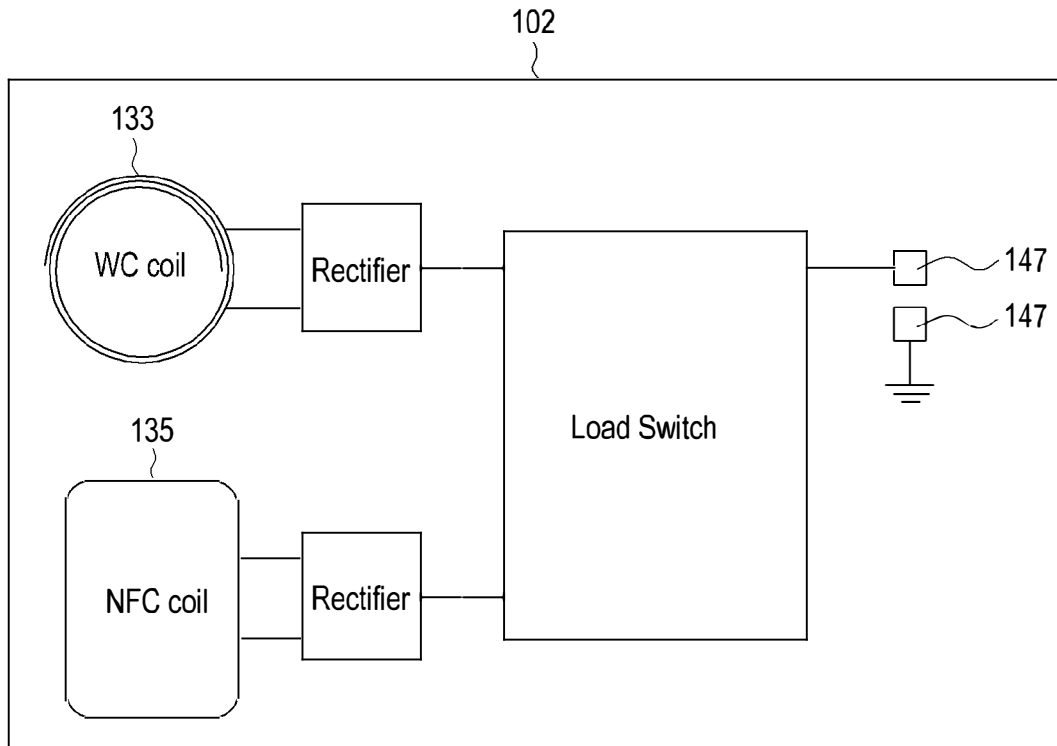
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(57) **ABSTRACT**

A portable terminal having a wireless charger coil and an antenna element on the same plane is provided, in which a shielding member is attached to an inner surface of an external part, a first coil is attached to one surface of the shielding member, facing the inner surface of the external part, and a second coil is attached to the one surface of the shielding member, surrounding the first coil on the same plane.

**15 Claims, 4 Drawing Sheets**



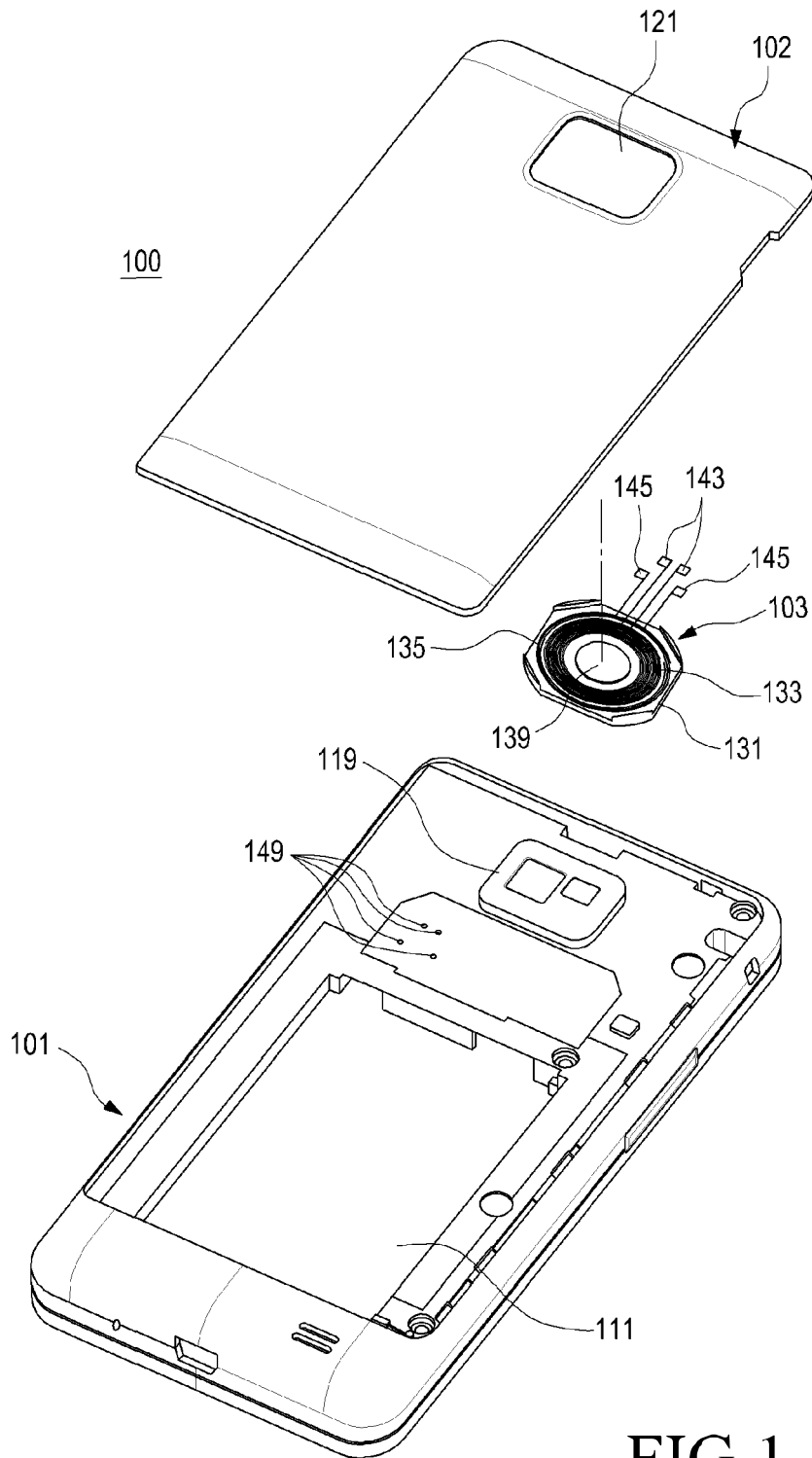


FIG. 1

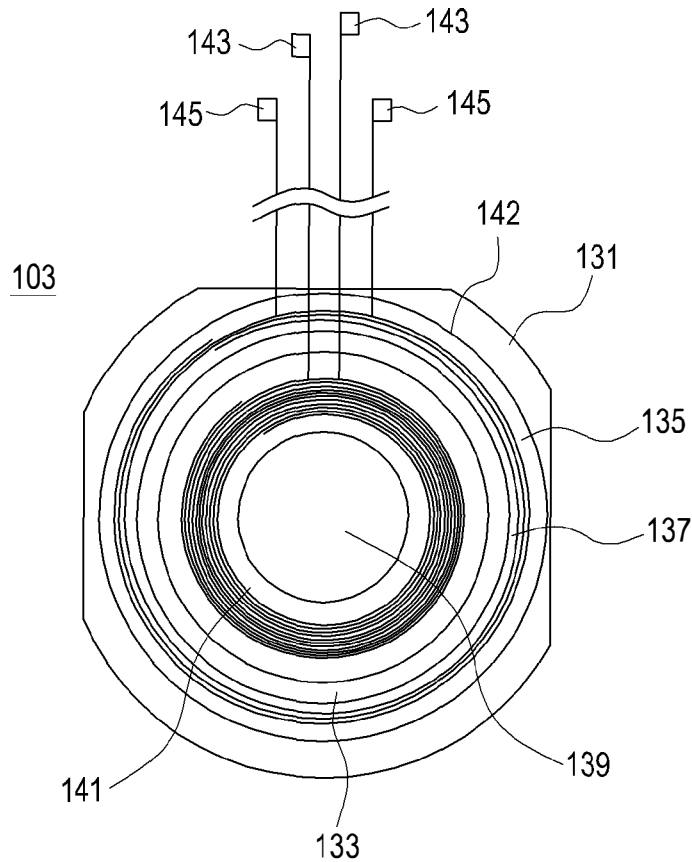


FIG. 2

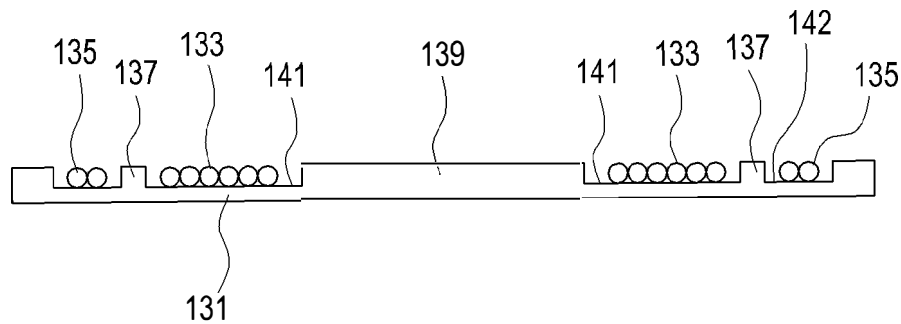


FIG. 3

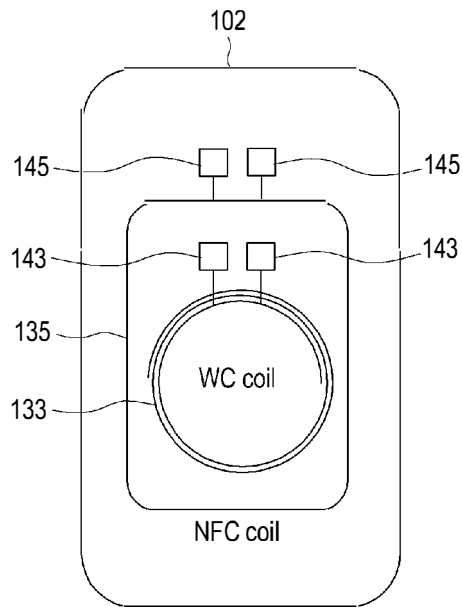


FIG. 4

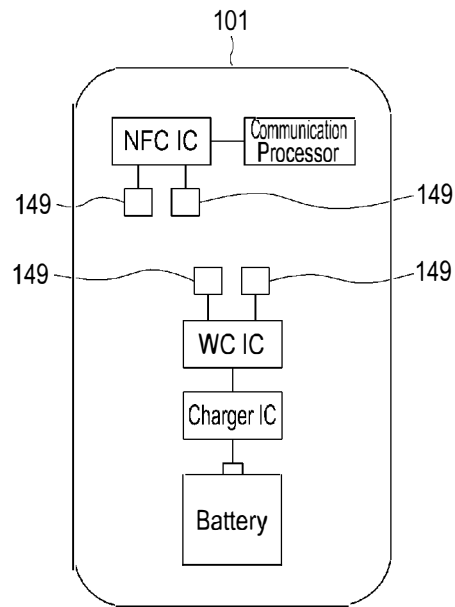


FIG. 5

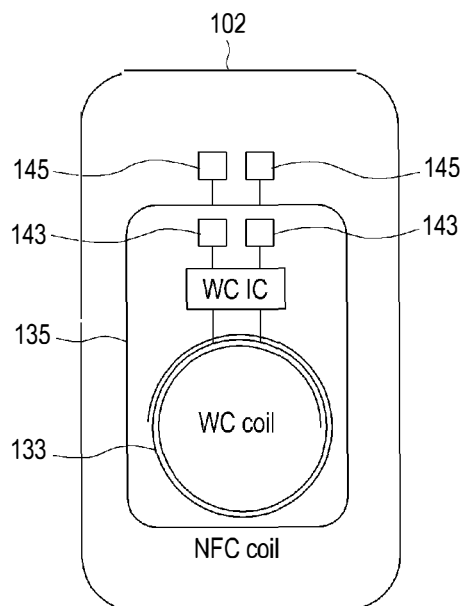


FIG. 6

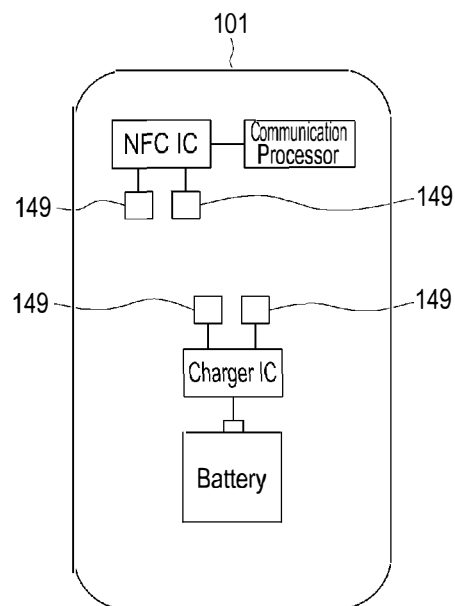


FIG. 7

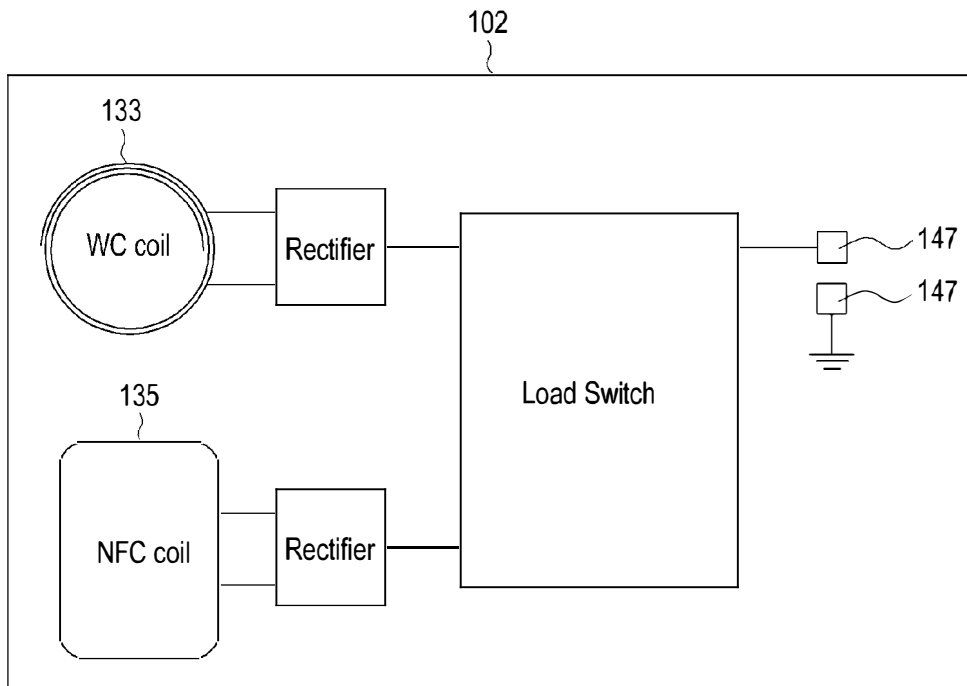


FIG.8

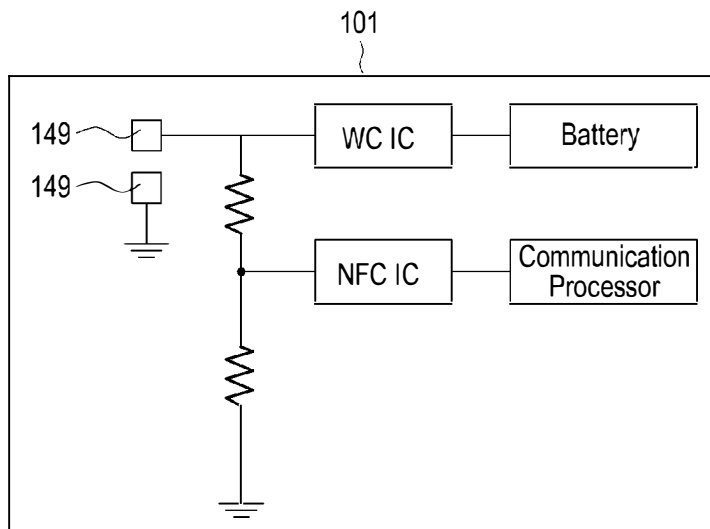


FIG.9

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