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(71) Applicant: **Samsung Electronics Co., Ltd.**
**Suwon-si, Gyeonggi-do, 443-742 (KR)**

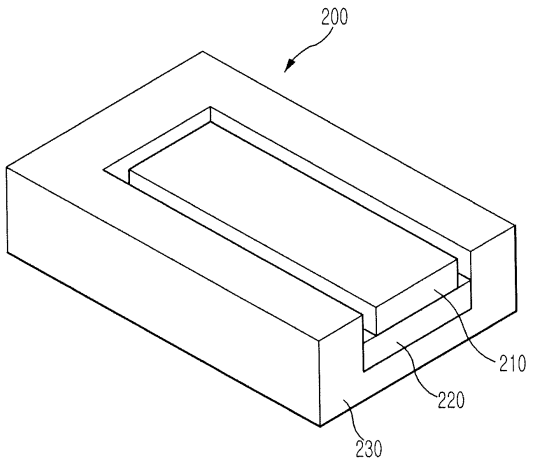
(72) Inventors:
- **Kwak, Hyun Suk**
  **Gyeonggi-do (KR)**
- **Ko, Young Chul**
  **Gyeonggi-do (KR)**
- **Kim, Tae Gyu**
  **Busan (KR)**
- **Kim, Nak Hyun**
  **Suwon-si (KR)**

(74) Representative: **Grünecker, Kinkeldey,**
**Stockmair & Schwanhäusser**
**Leopoldstrasse 4**
**80802 München (DE)**

## (54) Frost detecting apparatus, and cooling system and refrigerator having the same

(57) A frost detecting apparatus (200) including a first electrode (210) to generate an electric field in a frost detection region, a second electrode (230) to prevent the electric field from leaking into a frost non-detection region, an insulator (220) arranged between the first electrode and the second electrode, to insulate the first electrode, and a shield arranged around an exposed portion of the insulator, to prevent the electric field from leaking into the frost non-detection region through the exposed portion of the insulator. As the same potential is established at the first and second electrodes, it is possible to prevent electric field from leaking into a frost non-detection region through side surfaces of the first electrode. Accordingly, the electric field is varied only by frost formed in a frost detection region, so that it is possible to more accurately detect formation of frost and the amount of the formed frost.

FIG. 7A

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# EUROPEAN SEARCH REPORT

Application Number
EP 10 18 8725

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
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| Place of search | Date of completion of the search | Examiner |
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| The Hague | 19 January 2015 | Canköy, Necdet |

CATEGORY OF CITED DOCUMENTS

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