



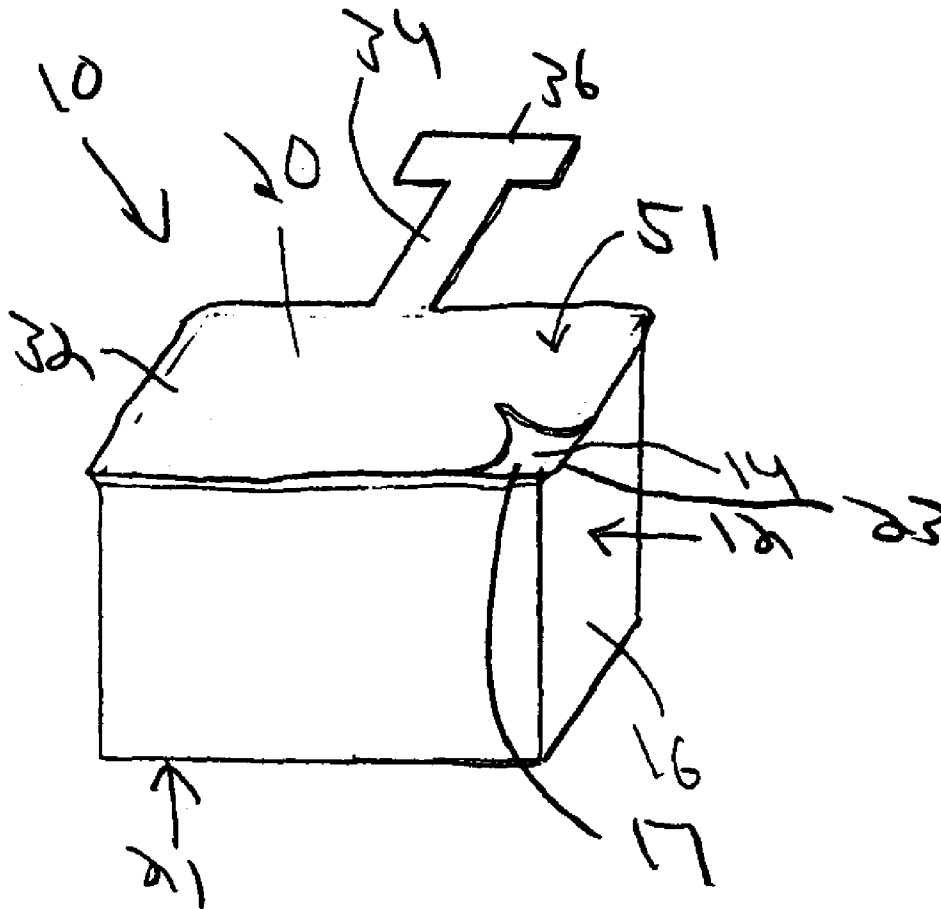
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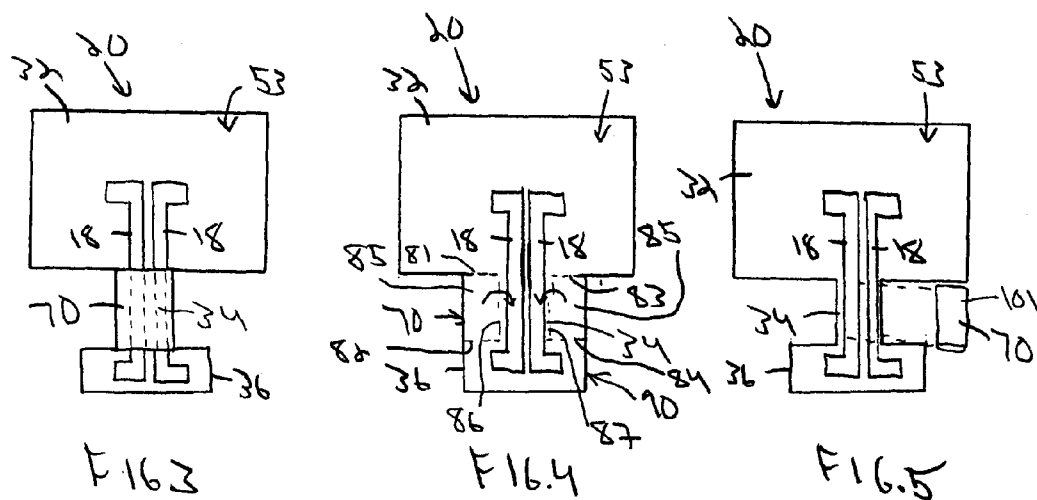
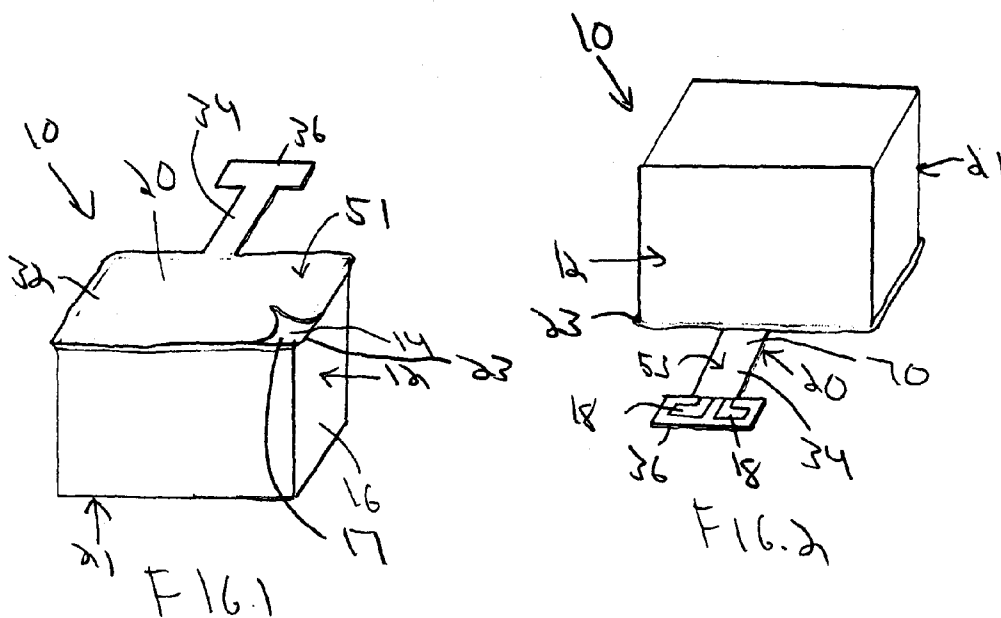
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**Kortman et al.**(10) **Pub. No.: US 2010/0059407 A1**(43) **Pub. Date: Mar. 11, 2010**(54) **COVER WITH CIRCUIT****Related U.S. Application Data**(76) Inventors: **John Curtis Kortman**, Grandville,  
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(2), (4) Date: **Nov. 12, 2009**(57) **ABSTRACT**

An apparatus comprising a sterile package having an inside and an outside, with the sterile package being sized and configured to maintain an electronic sterile device within the inside. The sterile package includes at least two conductive paths from the inside to the outside of the sterile package.





## COVER WITH CIRCUIT

### FIELD OF THE INVENTION

**[0001]** The present invention generally relates to sterile packages, and more specifically relates to a cover for sterile packages.

### SUMMARY OF THE PRESENT INVENTION

**[0002]** An aspect of the present invention is to provide an apparatus comprising a sterile package having an inside and an outside, with the sterile package being sized and configured to maintain an electronic sterile device within the inside. The sterile package includes at least two conductive paths from the inside to the outside of the sterile package.

**[0003]** These and other aspects, objects, and features of the present invention will be understood and appreciated by those skilled in the art upon studying the following specification, claims, and appended drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0004]** FIG. 1 is a top perspective view of an apparatus of the present invention.

**[0005]** FIG. 2 is a bottom perspective view of the apparatus of the present invention.

**[0006]** FIG. 3 is a bottom view of a lid of the apparatus of the present invention.

**[0007]** FIG. 4 is a bottom view of the lid of the apparatus of the present invention during a first embodiment of assembly of the lid.

**[0008]** FIG. 5 is a bottom view of the lid of the apparatus of the present invention during a second embodiment of assembly of the lid.

### DETAILED DESCRIPTION

**[0009]** For purposes of description herein, the terms “upper,” “lower,” “right,” “left,” “rear,” “front,” “vertical,” “horizontal,” and derivatives thereof shall relate to the invention as orientated in FIG. 1. However, it is to be understood that the invention may assume various alternative orientations, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

**[0010]** The reference number 10 (FIG. 1) generally designates an apparatus embodying the present invention. In the illustrated example, the apparatus 10 comprises a sterile package 12 having an inside 14 and an outside 16. The sterile package 12 includes at least two conductive paths 18 from the inside 14 to the outside 16 of the sterile package 12.

**[0011]** In the illustrated example, the sterile package 12 comprises a receptacle 21 and a cover or lid 20. The receptacle 21 is sized and configured to contain an electronic sterile device (not shown) therein. For example, the sterile device could be a pacemaker or any other item wherein sterility is desired or required before and during use of the sterile device. The receptacle 21 can be any item for containing the sterile device. For example, the receptacle 21 could be a tray made of plastic or other materials, a pouch or a preformed pocket. The

receptacle 21 may also be rigid or flexible. The receptacle 21 includes an opening 17 for inserting the sterile device into the receptacle 21. In the illustrated embodiment, the receptacle 21 includes a lip 23 surrounding the opening 17. The lid 20, if one is used, covers the opening 17 to enclose the sterile device within the sterile package 12. In the illustrated embodiment, the lid 20 is connected to the lip 23 of the receptacle 21. However, it is contemplated that the receptacle 21 may not include a lip 23 and that the lid 20 could be directly connected to the receptacle 21 adjacent the opening 17.

**[0012]** The illustrated lid 20 is used to maintain the sterile device within the sterile package 12 and to maintain the sterility of the sterile device. The lid 20 can be made of any material that encloses the opening 17 in the receptacle 21. For example, the lid 20 can be made of paper, plastic, a laminate of paper and plastic (or other materials), fabric, film, or the material sold under the Tyvek® and Mylar® marks by E. I. du Pont de Nemours and Company of Wilmington, Del. In the illustrated example, the lid 20 includes a top side 51 and a bottom side 53 and comprises a covering section 32, a neck section 34 extending from an edge of the covering section 32 and a foot section 36. The covering section 32 includes a periphery that is connected to the receptacle 21 and covers the opening in the receptacle 21. It is contemplated that the covering section 32 can be connected to the lip 23 of the receptacle 21 after the sterile device is placed in the receptacle to maintain the sterility of the sterile device.

**[0013]** In the illustrated embodiment, the at least two conductive paths 18 reach from the inside 14 of the sterile package 12 to the outside 16 of the sterile package 12. As illustrated, the at least two conductive paths 18 are the bottom side 53 of the lid 20 and extend from the covering section 32 to the foot section 36 via the neck section 34. The at least two conductive paths 18 can comprise an ink (e.g., silver) printed on the bottom side 53 of the lid 20, metal foils extending through the sterile package 12, a flexible circuit connected to the bottom side 53 of the lid 20, fine wires extending through the sterile package 12, or any other means for providing at least two conductive paths 18 from the inside 14 of the sterile package 12 to the outside 16 of the sterile package 12.

**[0014]** As illustrated in FIG. 3, the at least two conductive paths 18 may be fully covered at the neck section 34 using a cover 70. FIG. 4 illustrates a first embodiment for covering the at least two conductive paths 18 on the lid 20. In FIG. 4, the cover 70 is formed using the material of the lid 20. Initially, the lid 20 includes the covering section 32 and an extension 90, which will define the neck section 34 and the foot section 36. After the at least two conductive paths 18 have been applied to the lid 20, the lid 20 is cut at lines 81-84 in FIG. 4 and two flaps 85 are folded along lines 86 and 87 to thereby define the neck section 34 and the foot section 36. Therefore, the material of the lid 20 is folded upon itself and adhered thereto at the neck section 34. In this embodiment, it is contemplated that the at least two conductive paths 18 and the adhesive could be applied to the lid 20 at the flaps 85 and at edges of the lid 20 for connection to the receptacle 21 in one step (using a heat transfer adhesive applied to the flaps 85) or in several steps. Furthermore, it is contemplated that a release liner could be positioned over the lid 20, the at least two conductive paths 18 and adhesive for connecting the lid 20 to the receptacle 21 to cover the same until the sterile device is ready for use (e.g., over the entire bottom side 53 of the lid 20, over just the neck section 34 and the foot section 36 on the bottom side 53 of the lid, or over just the foot section 36 on the

bottom side **53** of the lid). Alternatively, it is contemplated that the adhesive could be applied to the whole bottom surface of the lid **20** to seal the receptacle **21** and/or that the adhesive could be a liquid or a pressure sensitive adhesive. FIG. **5** illustrates a second embodiment for covering the at least two conductive paths **18** on the lid **20**. In FIG. **5**, the cover **70** is formed by placing a flat piece of material over the neck section **34** or by placing a tube of material **101** around the neck section **34**.

**[0015]** The illustrated at least two conductive paths **18** can be used to test the sterile device. For example, the at least two conductive paths **18** can be used to test the battery of the sterile device to ensure that the sterile device is properly powered. Furthermore, the at least two conductive paths **18** can be used to ensure that the sterile device is working properly. Moreover, at least two conductive paths **18** can be used to determine whether the sterile device can work for its intended purpose (e.g., that a pacemaker will work with a particular person). Therefore, the sterile device can be tested, etc. without destroying the sterility of the sterile device (which could prevent the sterile device from being used at a later time as it will no longer be sterile when removed from the sterile package **12**).

**[0016]** The foregoing detailed description is considered that of a preferred embodiment only, and the particular shape and nature of at least some of the components in this embodiment are at least partially based on manufacturing advantages and considerations as well as on those pertaining to assembly and operation. Modifications of this embodiment may well

occur to those skilled in the art and to those who make or use the invention after learning the nature of this preferred embodiment, and the invention lends itself advantageously to such modification and alternative embodiments. For example, it is contemplated that the adhesive and/or the conductive paths could be applied to the lid by printing as disclosed in U.S. application Ser. No. 11/038,438 entitled Coated Substrate, the entire contents of which are hereby incorporated herein by reference. Furthermore, it is contemplated that the adhesive and/or conductive paths could include a biocide applied by printing or other means, such as that disclosed in U.S. Application No. 60/821,176 entitled Coated Substrate Having a Biocide, the entire contents of which are hereby incorporated herein by reference. Therefore, it is to be understood that variations and modifications can be made on the aforementioned structure without departing from the concepts of the present invention, and further it is to be understood that such concepts are intended to be covered by the following claims unless these claims by their language expressly state otherwise.

We claim:

**1.** An apparatus comprising:

a sterile package having an inside and an outside, the sterile package being sized and configured to maintain an electronic sterile device within the inside;

the sterile package including at least two conductive paths from the inside to the outside of the sterile package.

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