



(22) Date de dépôt/Filing Date: 2010/05/28

(41) Mise à la disp. pub./Open to Public Insp.: 2010/08/12

(51) Cl.Int./Int.Cl. *H01L 23/06* (2006.01),
H01L 23/58 (2006.01)

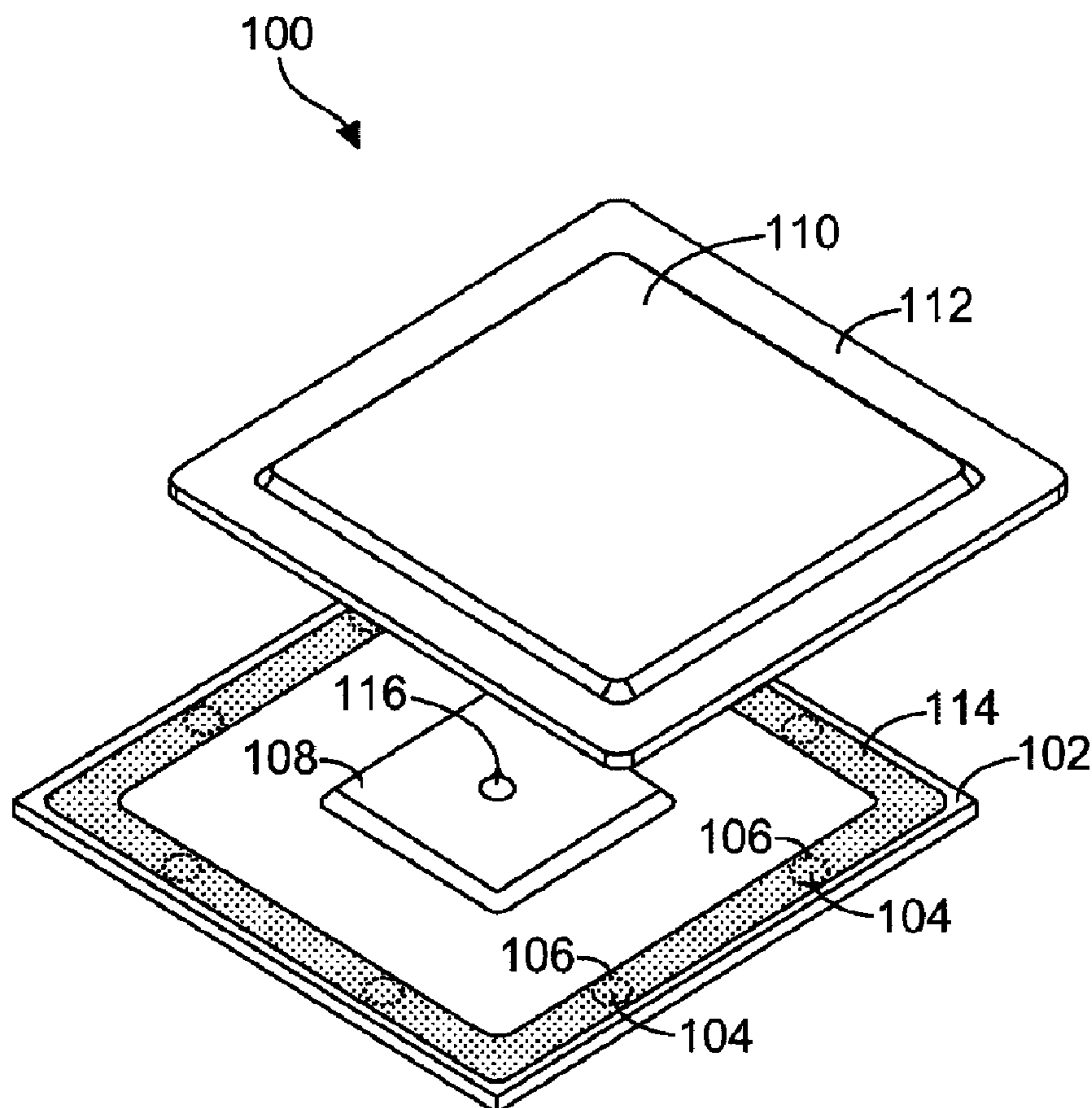
(71) Demandeur/Applicant:
IBM CANADA LIMITED - IBM CANADA LIMITEE, CA

(72) Inventeurs/Inventors:
BLANDER, ALEXANDRE, CA;
BEAUMIER, MARTIN, CA;
GAGNON, PASCALE, CA;
GAYNES, MICHAEL A., US;
GIGUERE, ERIC, CA;
SALVAS, ERIC, CA;
TOUSIGNANT, LUC, CA

(74) Agent: WANG, PETER

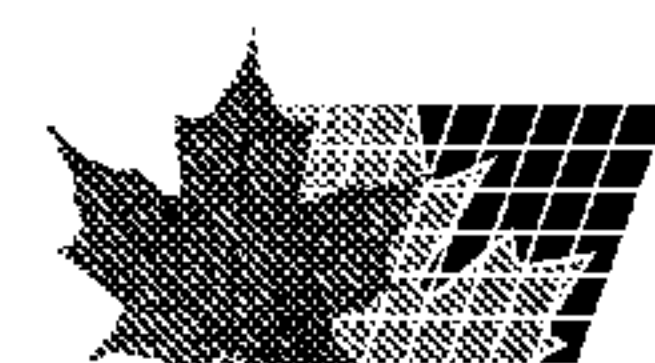
(54) Titre : COUVERCLE MIS A LA MASSE POUR ENSEMBLES MICROELECTRONIQUES

(54) Title: GROUNDED LID FOR MICRO-ELECTRONIC ASSEMBLIES



(57) Abrégé/Abstract:

An apparatus for reducing EMI at the micro-electronic-component level is disclosed in a first embodiment of the invention as including a substrate having a ground conductor integrated therein. A micro-electronic component such as an integrated circuit is



(57) **Abrégé(suite)/Abstract(continued):**

mounted to the substrate. An electrically conductive lid is mounted to the substrate, thereby forming a physical interface with the substrate. The electrically conductive lid substantially covers the micro-electronic component. A conductive link is provided to create an electrical connection between the electrically conductive lid and the ground conductor at the physical interface.

ABSTRACT

An apparatus for reducing EMI at the micro-electronic-component level is disclosed in a first
5 embodiment of the invention as including a substrate having a ground conductor integrated therein.
A micro-electronic component such as an integrated circuit is mounted to the substrate. An
electrically conductive lid is mounted to the substrate, thereby forming a physical interface with the
substrate. The electrically conductive lid substantially covers the micro-electronic component. A
conductive link is provided to create an electrical connection between the electrically conductive lid
10 and the ground conductor at the physical interface.

GROUNDING LID FOR MICRO-ELECTRONIC ASSEMBLIES

BACKGROUND

5 FIELD OF THE INVENTION

[0001] This invention relates to apparatus and methods for mitigating electromagnetic interference (EMI) in electrical circuits.

BACKGROUND OF THE INVENTION

10 [0002] Electrical circuits such as integrated circuits are used in a wide variety of different environments. As a result, special efforts are needed to develop electrical circuits that can function properly in their intended operational environments. Many electrical circuits operate in harsh and/or noisy environments, which can lead to issues with electromagnetic interference (EMI). EMI may include any unwanted, spurious, conducted, or radiated signal that can cause an undesired
15 degradation in the performance of an electrical circuit. Electromagnetic compatibility (EMC), on the other hand, is the ability of an electrical circuit to function as designed, without malfunctioning or exhibiting unacceptable performance degradation as a result of EMI that may be present in its operating environment. Examples of EMI performance degradation include a computing device interfering with FM radio reception or an automobile radio system buzzing upon passing under a
20 power line. In general, electrical circuits should be designed such that they do not generate EMI in amounts that adversely affect the performance of other electrical circuits in their vicinity and vice versa.

[0003] In the United States, Congress has granted the Federal Communications Commission (FCC) authority to regulate the susceptibility of electrical circuits to EMI in the U.S. The FCC also
25 regulates the amount of EMI that electrical circuits are allowed to generate in the U.S. Special

CLAIMS

1. An apparatus for reducing EMI at the micro-electronic-component level, the apparatus comprising:

a substrate having a ground conductor integrated therein;

5 a micro-electronic component mounted to the substrate;

an electrically conductive lid mounted to the substrate and forming a physical interface with the substrate, the electrically conductive lid substantially covering the micro-electronic component; and

10 a conductive link creating an electrical connection between the electrically conductive lid and the ground conductor at the physical interface.

2. The apparatus of claim 1, wherein the conductive link comprises an electrically conductive adhesive between the electrically conductive lid and the ground conductor.

15 3. The apparatus of claim 1, wherein the conductive link comprises a solder layer on the ground conductor, and an electrically conductive adhesive between the solder layer and the electrically conductive lid.

20 4. The apparatus of claim 3, wherein the adhesive is a resin-based adhesive filled with an electrically conductive material.

CA920100008CA1

1/7

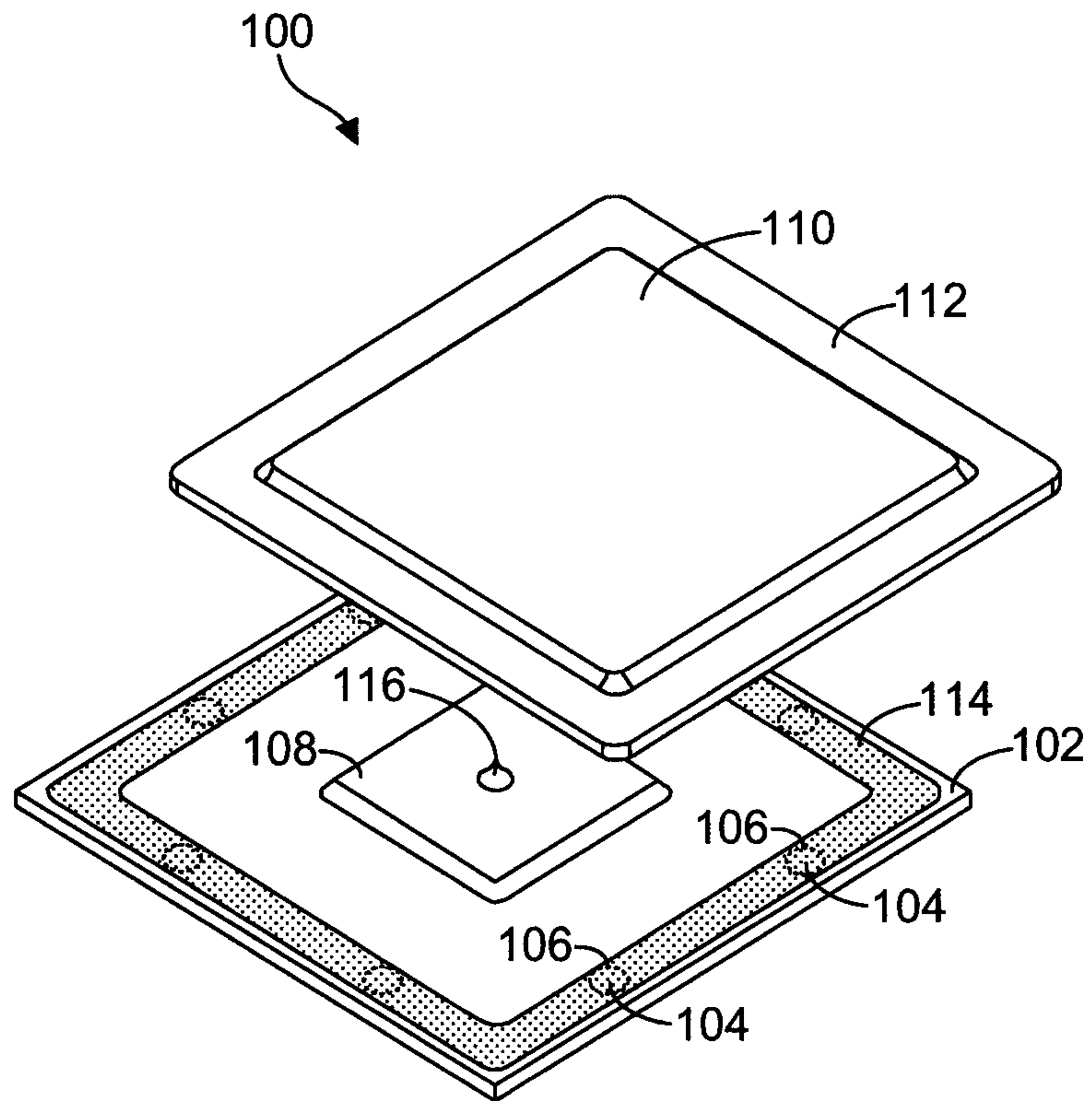


Fig. 1

CA920100008CA1

3/7

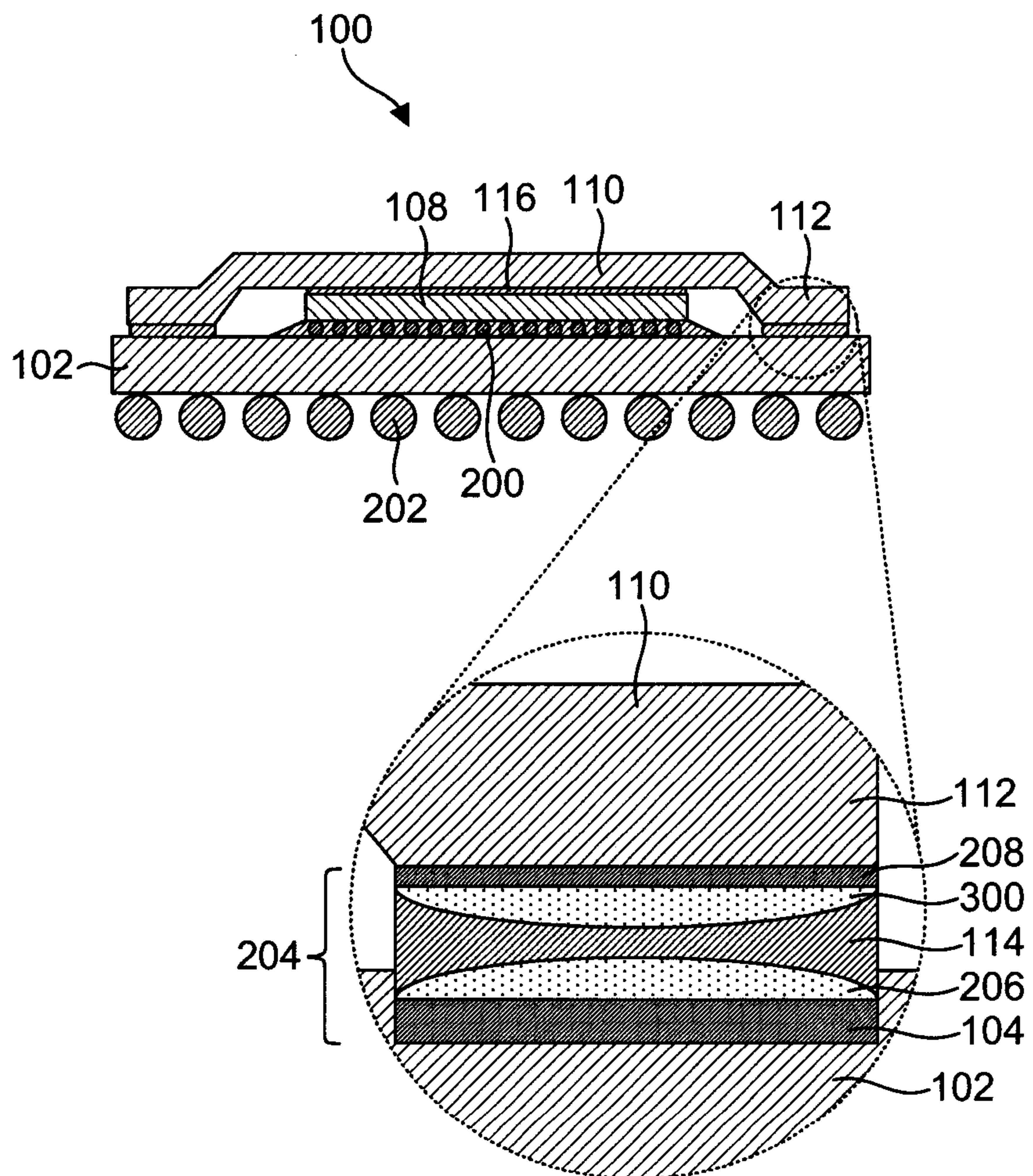


Fig. 3

CA920100008CA1

4/7

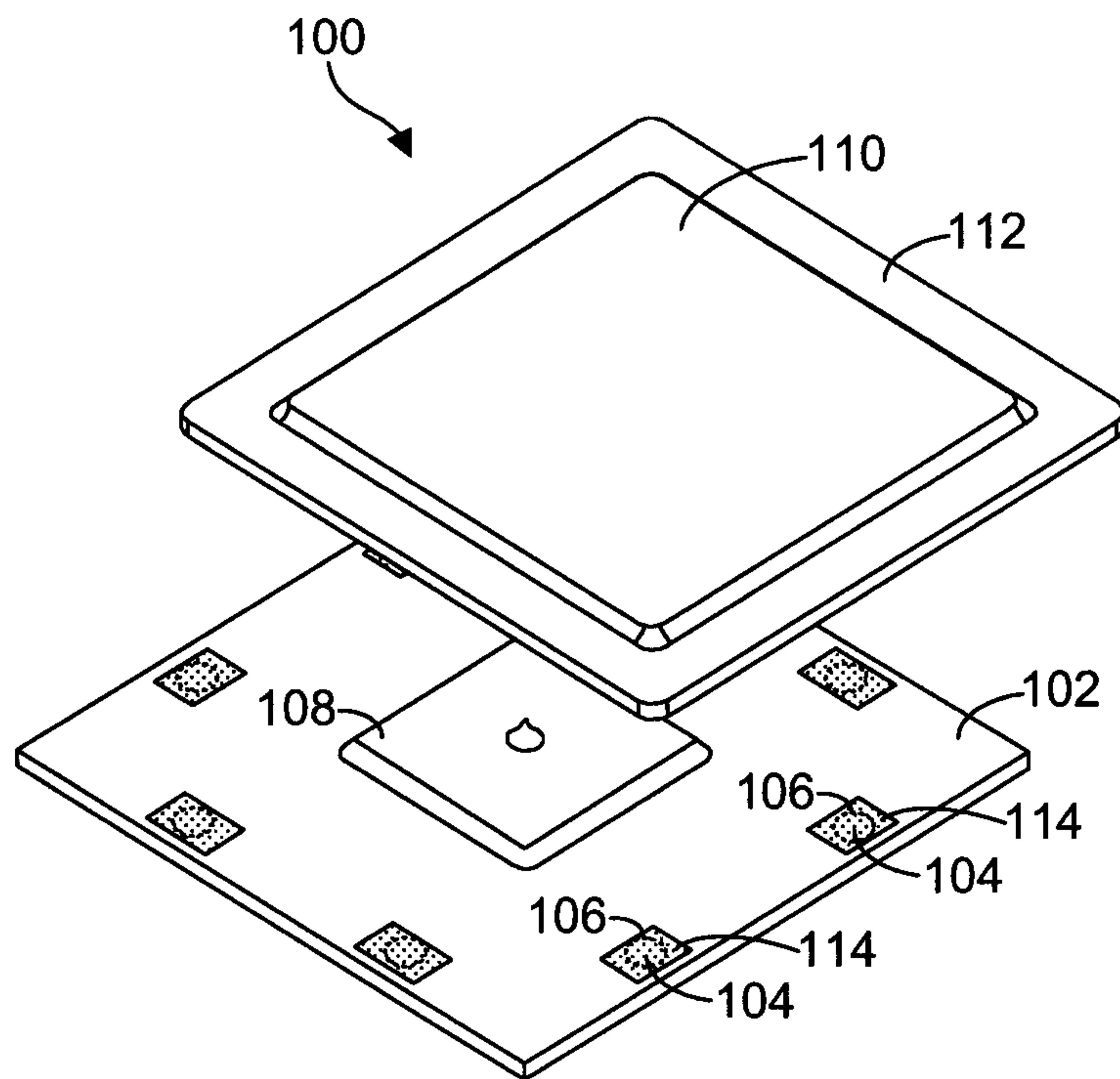


Fig. 4

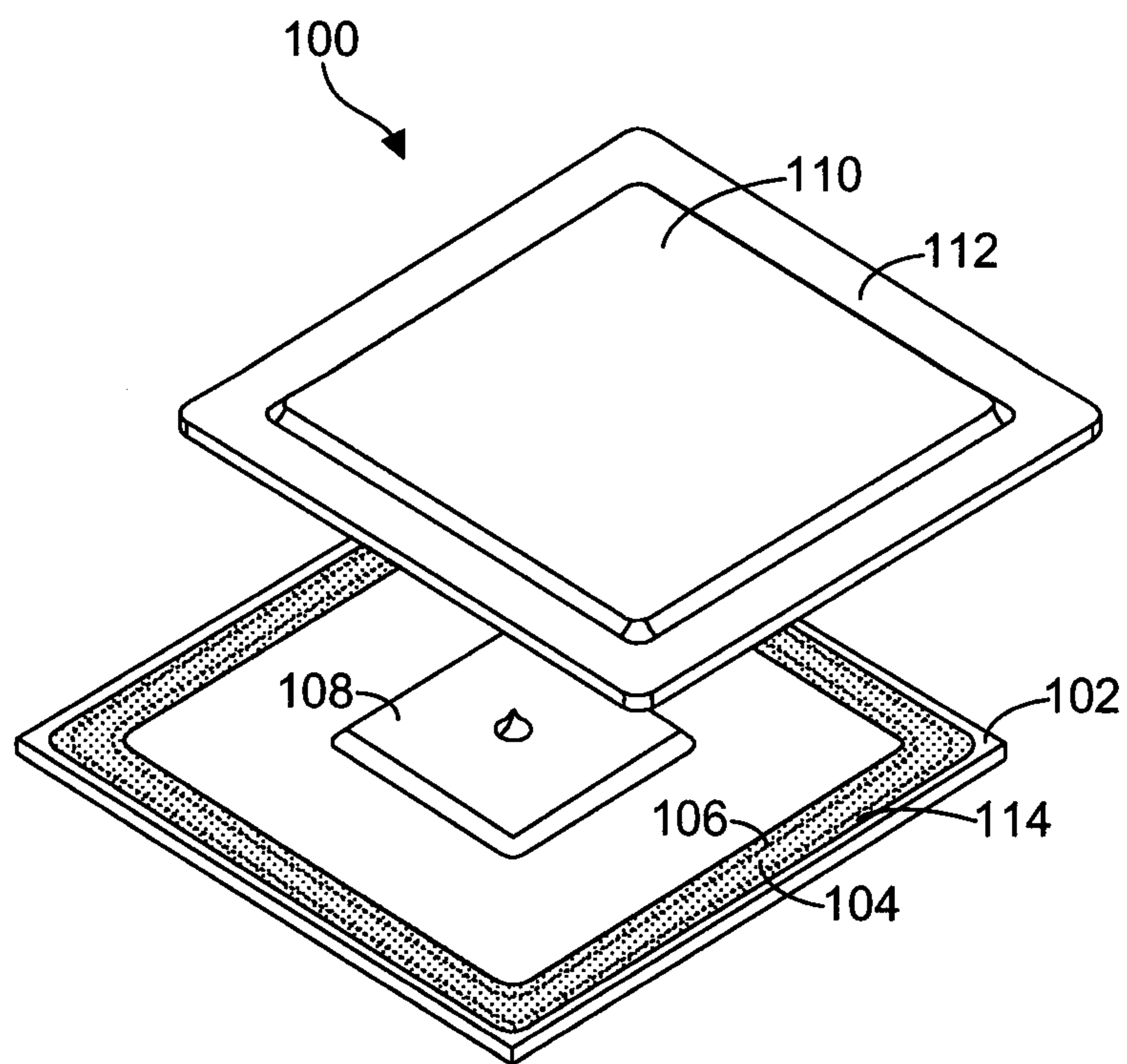


Fig. 5

CA920100008CA1

5/7

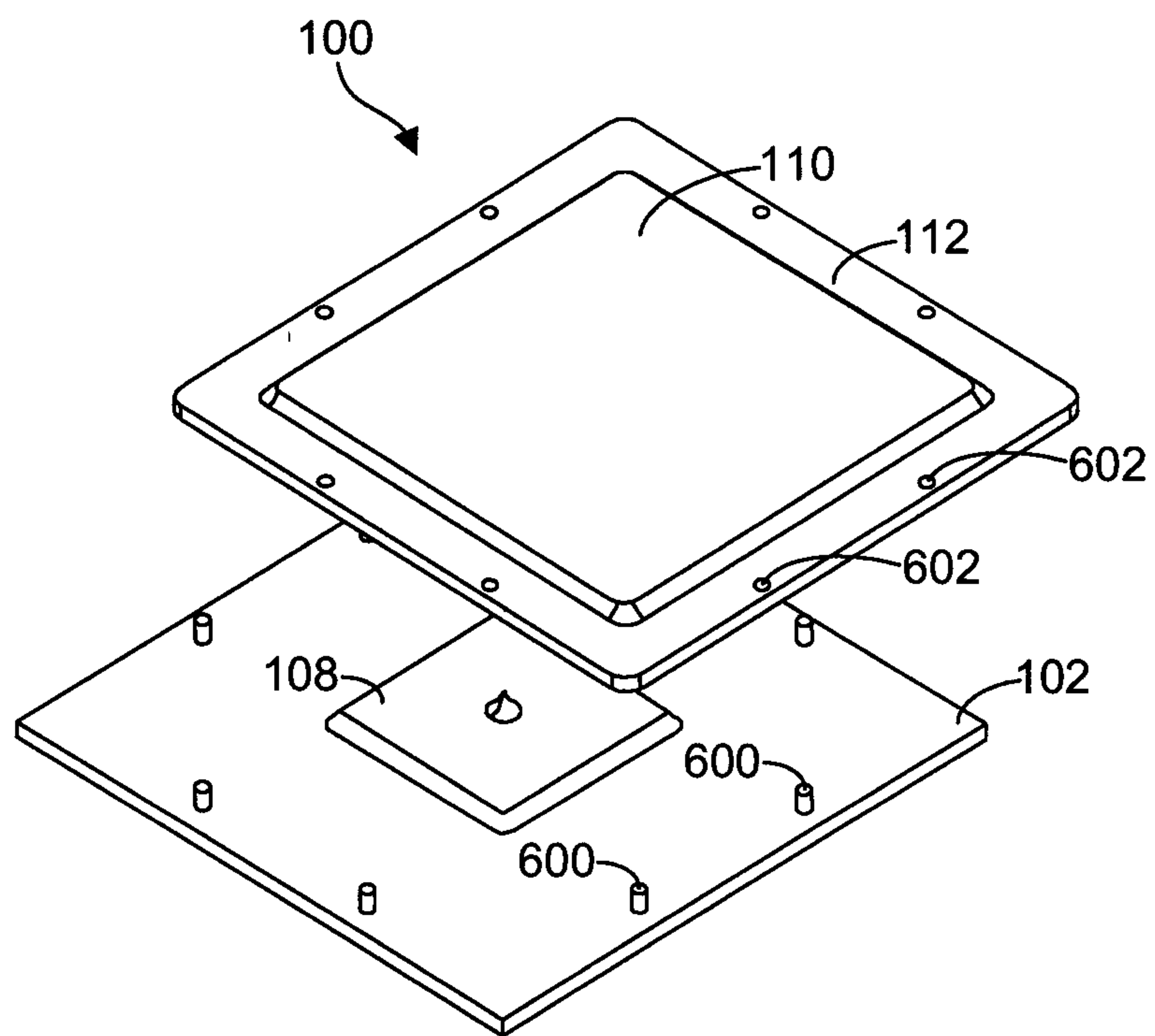


Fig. 6

CA920100008CA1

6/7

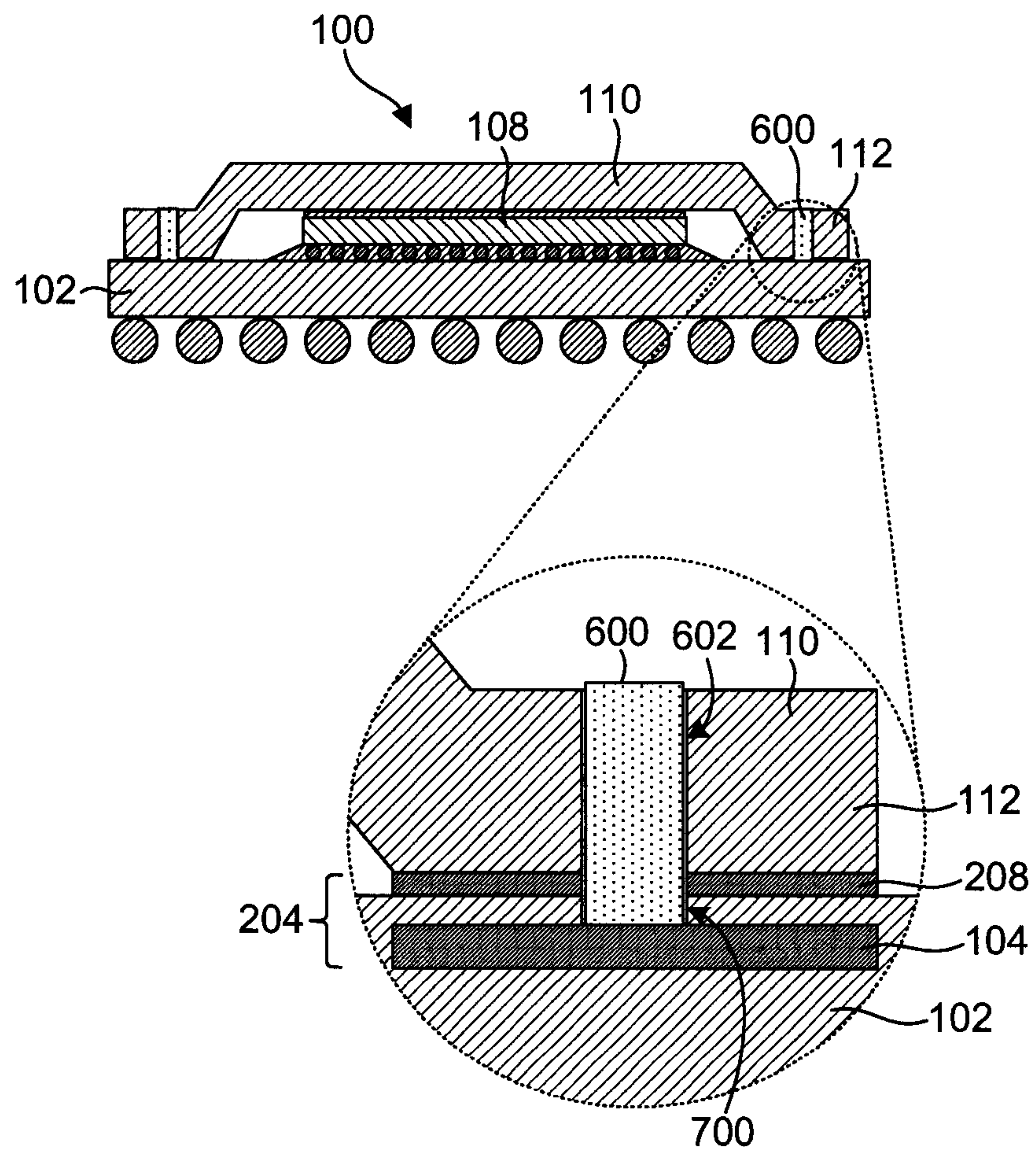
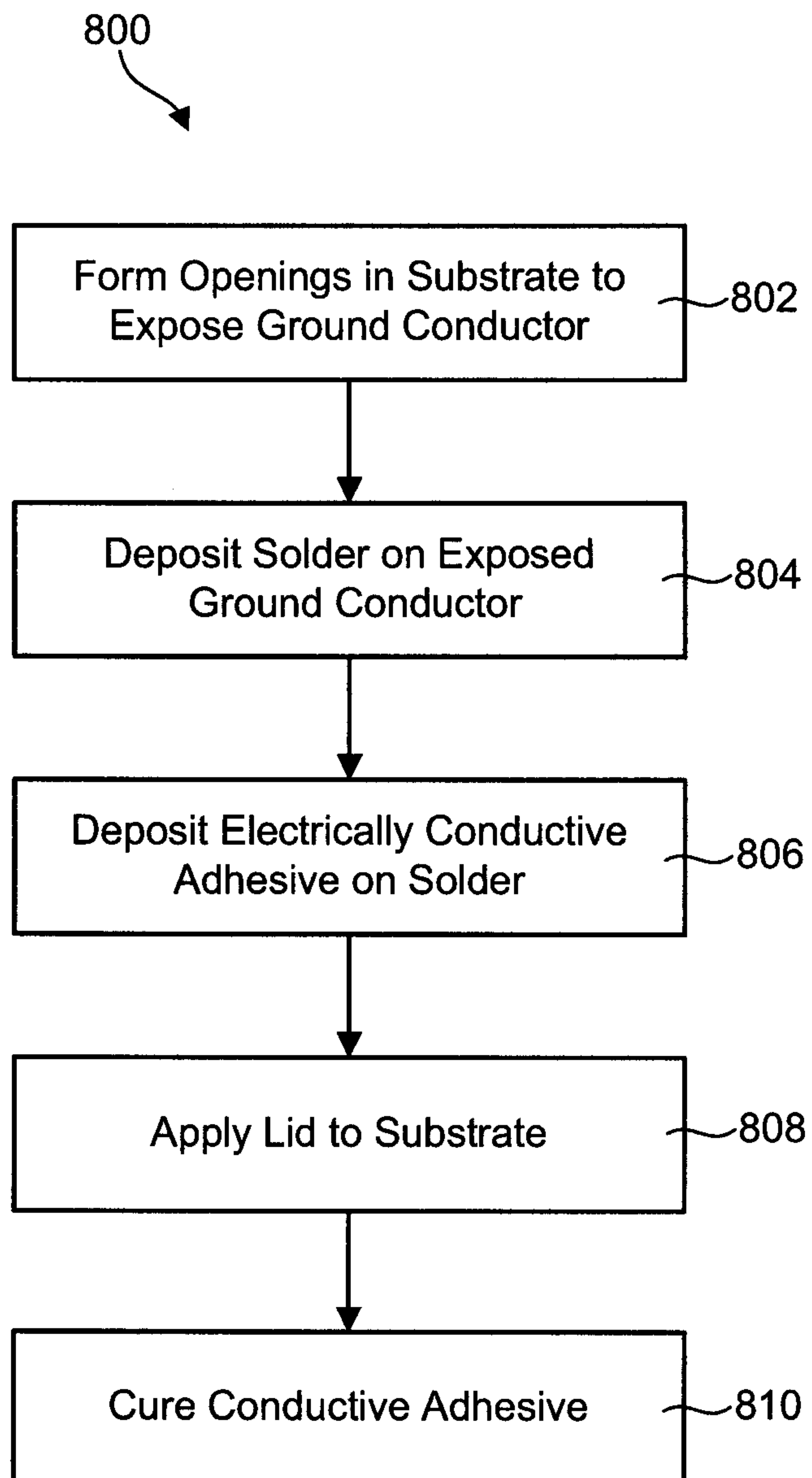


Fig. 7

CA920100008CA1

7/7

**Fig. 8**

