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EXAMINER

TANG, SUJAN

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARKUS BRUNNBAUER, HARRY HEDLER,
and THORSTEN MEYER

Appeal 2015-003661
Application 13/482,431
Technology Center 2800

Before JEFFREY T. SMITH, BEVERLY A. FRANKLIN, and
LILAN REN, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from the June 19, 2014 Final rejection of claims 1–8 and 10–20. We have jurisdiction under 35 U.S.C. § 6.

Appellants' appealed invention relates to an electronic device comprising an integrated component or chip. (Spec. 1). Claim 1 is illustrative of the subject matter on appeal and reproduced from the Brief below:

1. An electronic device, comprising:
an integrated component;

a package body; and
at least one spherical contact device penetrating the
package body,
wherein the integrated component is arranged within the
package body.

The Examiner has maintained the following grounds of rejection:

- I. Claims 1–8, 10–12, and 17–20 under 35 U.S.C. § 103(a) as unpatentable over Lee, US 7,242,081 B1, iss. July 10, 2007 (“Lee”) in view of Lee et al., US 7,112,520 B2, iss. Sept. 26, 2006 (“Teck”).
- II. Claims 13 and 14 rejected under 35 U.S.C. § 103(a) as unpatentable over Lee and Teck, and further in view of Shook, US 2001/0022382 A1, pub. Sept. 20, 2001 (“Shook”).
- III. Claim 15 rejected under 35 U.S.C. § 103(a) as unpatentable over Lee and Teck, and further in view of Feng, US 5,081,563, iss. Jan. 14, 1992 (“Feng”).
- IV. Claim 16 rejected under 35 U.S.C. § 103(a) as unpatentable over Lee and Teck, and further in view of Pape, US 5,982,028, iss. Nov. 9, 1999 (“Pape”).

OPINION¹

We have reviewed each of Appellants’ arguments for patentability. We will sustain the Examiner’s rejection for essentially those reasons

¹ Appellants have not present arguments specific to every claim on appeal. When addressing Rejections II–IV Appellants rely on the same arguments presented when discussing Rejection I. (App. Br. 6–7). We limit our discussion to independent claims 1 and 18 as representative of the subject matter on appeal.

expressed in the Answer, including the Response to Argument section. We add the following:

We refer to the Examiner's Final Action for a statement of the rejection. (Final Act. 2–8).

Appellants argue the Examiner has not established that the combination of Lee and Teck teaches or suggests “at least one spherical contact device penetrating the package body” as required by independent claims 1 and 18. (App. Br. 5). Appellants argue Teck discloses, as shown in Figure 6, that solder ball (152) is not spherical because it is reflowed to attach the interconnect structures of the pattern of conductive traces and to fill any space remaining within interconnect recess. (App. Br. 6; Teck col. 6, ll. 63–65). Appellants argue the contact shape claimed provides advantage that during soldering the contact devices will not change their shape on account of the surface tension thus, no intermediate spaces occur between the contact devices and the package body which is not possible in the device of Teck. (App. Br. 6).

Appellants' arguments are not persuasive of reversible error. Appellants have focused their argument for patentability on the Teck reference. (App. Br. 5–7). The Examiner found Lee discloses an electronic device comprising an integrated component having contact devices that differ from the claimed invention in their spherical shape. The Examiner relied on Teck for describing the use of solder balls as contact devices. (Final Act. 3). Lee is open to various types of electrical connection devices so long as the connection device is higher than the chip structure and altitude. (Col. 5 ll. 25–32). Teck describes solder balls as conductive elements (32) which reside substantially within recess (30) that is

configured. (Col. 3 ll. 44–48). Teck discloses recess (30) is designed to retain the solder composition and can be designed and sized to constrain formulations of spheres. The teachings of Teck would have provided a person of ordinary skill in the art sufficient guidance to design recesses for constraining conductive elements in the shape of spheres. A person of ordinary skill in the art would have reasonably expected that conductive elements having the shape of spheres would have been suitable for the device of Lee.

Appellants' arguments regarding the purported advantages of the claimed spherical shape do not detract from the teaching of Tech which exhibit the shape is known for conductive elements.

Accordingly, we affirm the Examiner's decision to reject claims 1–8, 10–12, and 17–20 for the reasons presented by the Examiner and given above.

ORDER

The Examiner's obviousness rejections of claims 1–8 and 10–20 are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED