

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

KINGPAK TECH, INC.,
Appellant,

v.

DAVID J. KAPPOS, DIRECTOR,
UNITED STATES PATENT AND TRADEMARK
OFFICE,
Appellee,

AND

ORIENT SEMICONDUCTOR ELECTRONICS, LTD.,
Appellee.

2012-1231

(Reexamination No. 95/000,099)

Appeal from the United States Patent and Trademark
Office, Board of Patent Appeals and Interferences.

Decided: December 12, 2012

TAREK N. FAHMI, of San Jose, California, for appel-
lant.

RAYMOND T. CHEN, Solicitor, United States Patent and Trademark Office, of Alexandria, Virginia, for appellee. With him on the brief were BRIAN T. RACILLA and NATHAN K. KELLEY, Associate Solicitors.

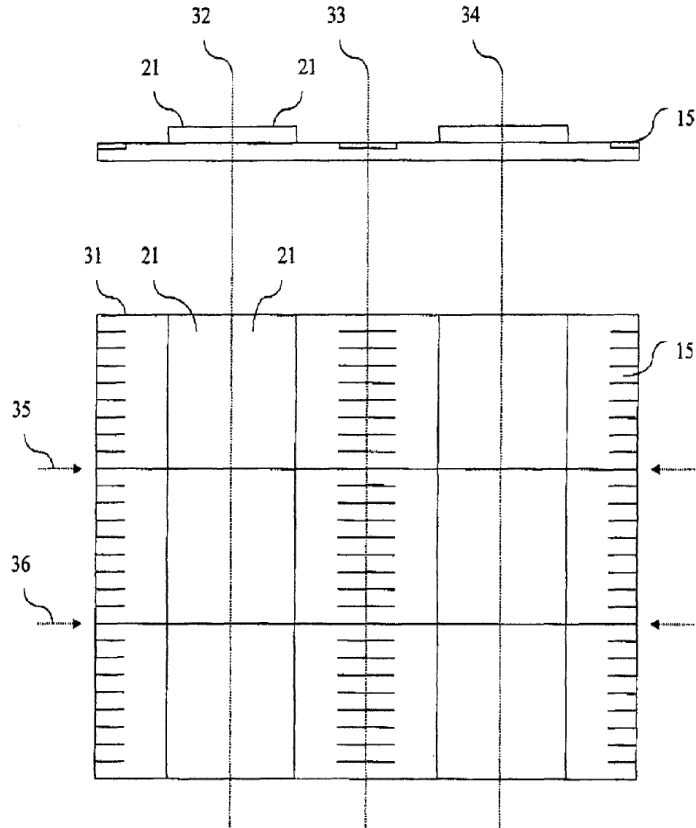
Before BRYSON, SCHALL, and MOORE, *Circuit Judges*.

PER CURIAM.

Kingpak Tech, Inc. (Kingpak) appeals from the Board of Patent Appeals and Interferences (Board) decision affirming the examiner's rejections of claims 1, 2, 4, 6–8, 10, 20, and 23–26 of U.S. Patent No. 6,656,008 ('008 patent) as not patentable over several prior art references. *See Kingpak Tech, Inc. v. Orient Semiconductor Elecs., Ltd. (Board Decision)*, No. 2011-010571 (B.P.A.I. Nov. 17, 2011). Because the Board did not err, we *affirm*.

BACKGROUND

Kingpak's '008 patent is directed to a method for manufacturing a computer module card on a printed circuit board (PCB). The patented technology employs the "chip-on-board technique" to eliminate from the manufacturing process the costly step of mounting components onto the surface of the PCB. '008 patent col.1 ll.50–67. The module cards are manufactured in "batches" by mounting many circuit components on a single base board material and then cutting the board to obtain the module cards. *Id.* col.3 l.19–col.4. l.9. Figure 3 of the '008 patent, reproduced below, shows a batch of twelve module cards:



In Figure 3, each module card has a packing area (21) and a series of golden fingers (15). The packing areas (21) contain a module card's circuit components. *Id.* col.2 ll.23–25. A card's golden fingers (15) insert into a slot of the computer's main board and connect the card's circuit components to the host computer. *Id.* col.1 ll.27–28. The packing area and the golden fingers area of one module are symmetrical with respect to the respective areas of a second module, and a machine forms the individual module cards by cutting the board along “symmetrical lines” 32, 33, 34, 35, and 36. *Id.* col.2 l.63–col.3 l.6; J.A. 176.

During an *inter partes* reexamination before the United States Patent & Trademark Office (PTO), Kingpak added claims and amended the issued claims of the '008 patent. Claims 1 and 24 are representative of the claims on appeal. Claim 1 recites a method for manufacturing a batch of module cards:

1. A method of manufacturing a batch of module cards comprising steps of:

chip-on-board mounting a plurality of chips directly on a base board, at least one chip of the plurality of chips being mounted within a respective packing area of said base board, each respective packing area of said base board associated with one respective, separate golden fingers area for electrically connecting to said at least one chip mounted within said respective packing area, each golden fingers area insertable into a slot of a main-board, *two adjoining respective packing areas of said base board forming a pair of packing areas across a respective first symmetrical line, two adjoining respective golden finger areas forming a pair of golden finger areas across a respective second symmetrical line . . .*; and

forming individual ones of said batch of module cards by cutting the base board at all symmetrical lines.

J.A. 176 (emphasis added). Claim 24 is to a module card with specific elements:

24. A module card comprising:

a base board;

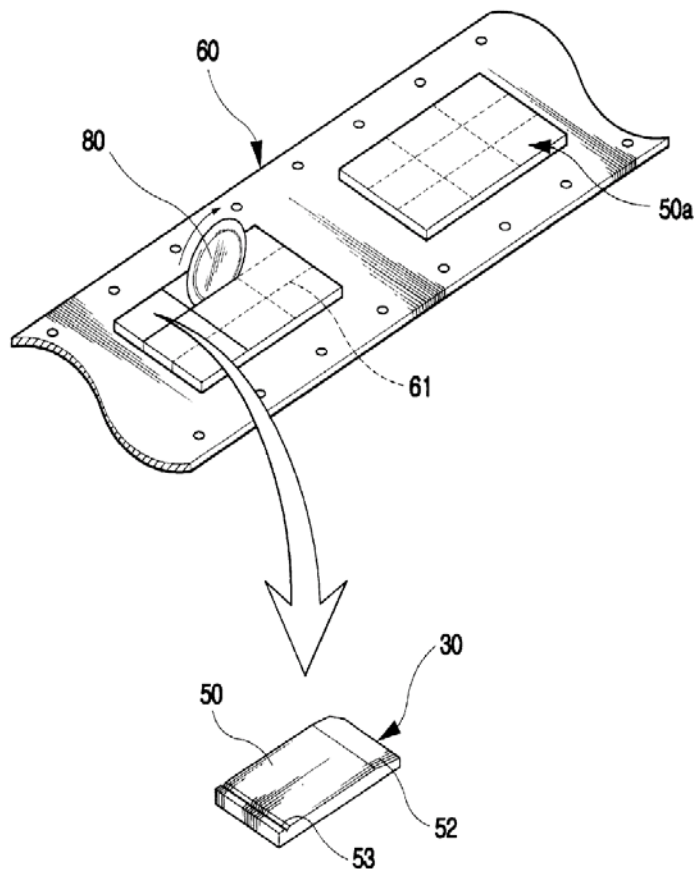
a chip mounted on a surface of said base board;

[and]

a golden fingers area on said base board electrically connected to said chip and insertable into a slot of a main-board . . . ;

wherein a cutting edge of the golden fingers area is substantially aligned with a cutting edge of the base board.

J.A. 178 (emphasis added). During the reexamination, the PTO rejected the claims as not patentable over of a number of references, including U.S. Patent No. 6,323,064 (Lee). Lee discloses a method for manufacturing a batch of memory cards by cutting along a series of lines in a matrix to separate the identical memory cards. Lee, Fig. 10, col.5 1.57–col.6 1.6. Figure 10 of Lee, reproduced below, shows a cutter (80) separating the memory cards (30) by cutting along the dashed lines (61):

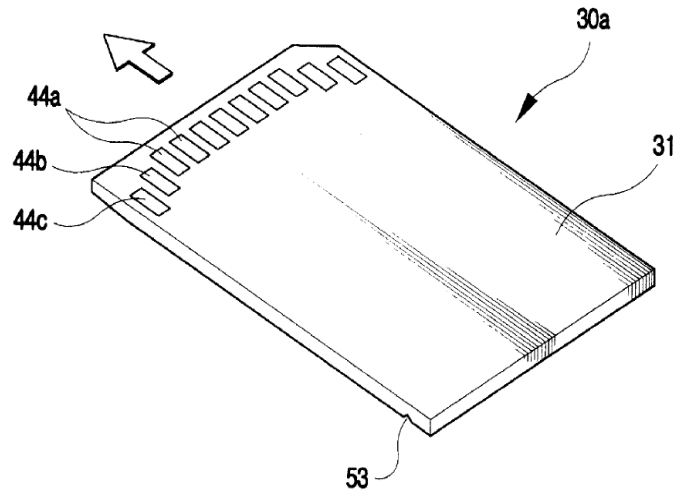


The memory cards in the matrix are all oriented in the same direction. The top surface of the each card's substrate contains electronic components that are covered in a resin. *Id.* Figs. 3, 7, col.3 ll.30–61, col.4 ll.21–34. Figure 10 depicts the top surfaces of a batch of memory card modules. The PTO identified this area of the substrate as the “packing area” recited in claim 1, a finding that Kingpak does not dispute.

The bottom surface of the substrate contains the card's contact pads. Those pads provide an electrical signal path when the memory card is inserted into a card reader. *Id.* col.3 ll.52–61. The PTO identified the contact

pad area on the bottom of the substrate as the claimed “golden fingers area.” Kingpak does not challenge that finding.

Lee discloses two configurations of the contact pads. Figure 4 discloses the contact pads (44a, 44b, 44c) arranged in a “stepped pattern” configuration:



Lee also depicts a sample memory card with contact pads in a “wavy pattern.” That pattern covers most of the bottom surface of the substrate. *Id.* Fig. 5, col.3 l.62–col.4 l.2.

The PTO concluded that Lee, in combination with other prior art, rendered obvious the '008 patent claims. Kingpak appealed the PTO's rejections to the Board, and the Board affirmed. The Board declined to limit the claimed lines of symmetry to “mirror symmetry” and found that Lee teaches identical modules with “translational symmetry” as arranged in the matrix. *Board Decision*, at 10; see also *id.* at 12–13. The Board found that when the memory cards in Lee are positioned as described in Figure 10, the golden fingers adjoin across a line of symmetry and the packing areas adjoin across a

separate line of symmetry. *Id.* at 14–15. The Board also found that, while Lee’s golden fingers (i.e., the contact pads) are recessed from the cutting edge of the base board, they are nonetheless “substantially aligned” with the cutting edge of the board. *Id.* at 13. Kingpak appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

Obviousness is a legal question based on underlying factual determinations, including what the prior art teaches. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *In re Fulton*, 391 F.3d 1195, 1199–1200 (Fed. Cir. 2004). We review the Board’s factual findings for substantial evidence and review the Board’s legal conclusions *de novo*. *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000). A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938).

Kingpak challenges the Board’s underlying factual findings regarding the teaching of Lee. Because we conclude that substantial evidence supports the Board’s findings regarding Lee, we will not address Kingpak’s other arguments.

A. Adjoining Areas Across a Symmetrical Line

Kingpak argues that Lee does not disclose adjoining packing areas across a symmetrical line or adjoining golden finger areas across a symmetrical line. In particular, Kingpak argues that the golden finger areas in Lee are separated from another by the length of the module and thus are not adjoining across a first symmetrical line. Similarly, Kingpak argues that the packing areas in Lee are displaced from one another by

the length of the finger area and are not adjoining across a second symmetrical line.

The Board's finding that Lee discloses translational symmetry that falls within the scope of the '008 patent claims is supported by substantial evidence. In Lee, when the memory cards are aligned in the matrix, the contact pad area of one memory card is adjacent to the contact pad area of a second memory card across the line that divides the cards on their long side. Lee, Figs. 4 and 10. That long-side line defines a symmetrical relationship between the contact pad areas. *Id.* Similarly, Lee discloses that the packing area on the top surface of a memory card is adjacent to the packing area of a second memory card across the line that divides the cards on their short sides. *Id.* at Figs. 3 and 10. That short-side line defines a translational symmetrical relationship between the packing areas. *Id.* Lee then discloses that a cutter cuts along these long-side and short-side symmetrical lines to obtain the individual memory cards. We thus conclude that substantial evidence supports the Board's finding that Lee discloses the adjoining of packing areas across a first symmetrical line and golden finger areas across a second symmetrical line as required by the claims.

B. Substantially Aligned With an Edge of the Base Board

Kingpak also argues that the Board erred in finding that Lee discloses a golden finger area that is "substantially aligned" with an edge of the base board. We disagree. Kingpak is correct that the edge of the golden finger areas disclosed in Lee are not completely aligned with the edge of the board. But the claims only require that the edge of the golden finger areas be "substantially aligned" with the edge of the board.

Figures 4 and 5 in Lee both depict a golden finger area that appears substantially aligned with the cutting edge of the base board. Kingpak provides no reason why the edges of those golden finger areas, contrary to Lee's plain disclosure, are not substantially aligned with the edge of the base board. Thus, we conclude that substantial evidence supports the Board's finding that Lee teaches the "substantially aligned" limitation in the claims.

CONCLUSION

We have considered Kingpak's remaining arguments and conclude that they lack merit. Accordingly, we affirm the Board's decision.

AFFIRMED