

# United States Court of Appeals for the Federal Circuit

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(Serial No. 10/016,750)

**IN RE SHAHRAM MOSTAFAZADEH AND JOSEPH  
O. SMITH**

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2010-1260

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

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Decided: May 3, 2011

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STEVE D. BEYER, Beyer Law Group LLP, of Cupertino,  
California, argued for appellants. With him on the brief  
was EDWARD VAN GIESON.

JANET A. GONGOLA, Associate Solicitor, Office of the  
Solicitor, United States Patent and Trademark Office, of  
Alexandria, Virginia, argued for the Director of the  
United States Patent and Trademark Office. With her on  
the brief were RAYMOND T. CHEN, Solicitor, and FRANCES  
M. LYNCH, Associate Solicitor.

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Before DYK, FRIEDMAN, and PROST, *Circuit Judges*.

DYK, *Circuit Judge*.

Shahram Mostafazadeh and Joseph O. Smith (collectively, “applicants”) appeal from a decision of the United States Patent and Trademark Office, Board of Patent Appeals and Interferences (“Board”). The Board affirmed the examiner’s rejection of claims 11–23 in the applicants’ reissue patent application. *In re Mostafazadeh*, No. 2009-004238 (B.P.A.I. Aug. 27, 2009) [hereinafter *Board Decision*]. Because the reissue application impermissibly attempted to recapture subject matter surrendered during prosecution of the original patent application, we affirm.

#### BACKGROUND

U.S. Patent Number 6,034,423 (“the ’423 patent”), which issued in 2000, is generally directed to lead frame based semiconductor packaging. This type of semiconductor packaging supports and protects the integrated circuit module (“chip”), while providing electrical pathways between the chip and external devices. The ’423 patent describes two embodiments, the pin-type package and the bottom-surface-mount package. Both embodiments include a chip (also known as a die), which is mounted on a metal lead frame and encapsulated by a ceramic or plastic casing. Within the lead frame, the chip is supported by a die attach pad and connected to a pair of bus bars, which are used to facilitate electrical connections to external devices.

In the pin-type embodiment, shown in Figure 1 below, the protective casing [130] covers the top, sides, and bottom surfaces of the lead frame [220]. The lead frame electrically connects the chip [110] to external devices through a number of metal leads [122] that extend outside the casing. The portions of the leads that extend outside the casing are typically bent downward to form

pins [140]. These pins are used to connect the package to external devices.

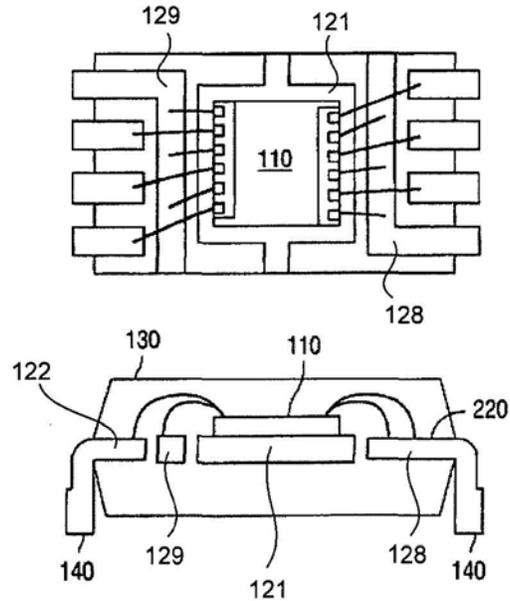


Figure 1

In the bottom-surface-mount embodiment, shown in Figure 2 below, the protective casing [160] covers only the top and side surfaces of the lead frame [220], leaving the bottom surface [170] exposed. In this embodiment, electrical connections to external devices are made through solder balls [150] on the bottom surface of the lead frame. The exposed bottom surface of the lead frame contains several attachment pads [126], to which the solder balls are attached.

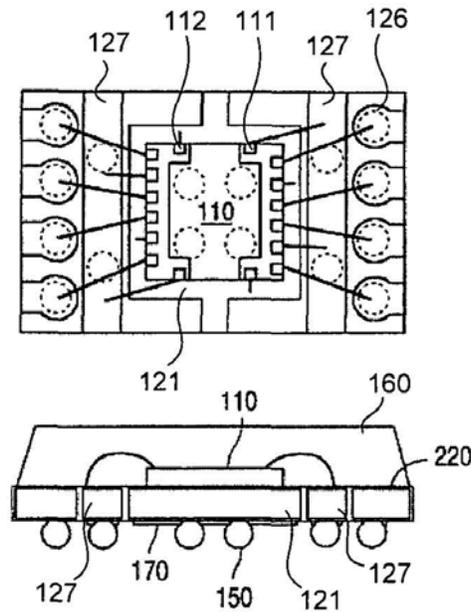


Figure 2

As originally filed, the claims encompassed both the pin-type and bottom-surface-mount embodiments. All of the originally filed claims were rejected as either anticipated or obvious because the prior art disclosed the pin-type embodiment encompassed by the claims.<sup>1</sup> To over-

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<sup>1</sup> Original claim 1 is representative:

In an integrated circuit package, a lead frame comprising:

- a die attach platform;
- a plurality of elongated leads which are electrically isolated from said die attach platform; and
- a first bus bar which is electrically isolated from said die attach platform and said plurality of elongated leads.

J.A. 318.

come this rejection, claims 1 and 9 (the only independent claims) were amended to add the requirement of “circular attachment pads.”<sup>2</sup> The applicants made no assertion that attachment pads as such were novel. Rather, the assertion was that a *circular* attachment pad was novel. In the remarks accompanying the amendment, the applicants argued that “neither the circular pads . . . nor their attendant benefits [were] disclosed or suggested by [the prior art].” J.A. 308. The ’423 patent issued with the amended claim set.

In 2001, the applicants filed an application to reissue the ’423 patent. This application included twelve new claims. In the reissue declaration, the applicants alleged that the original claims were partially inoperative because the circular-attachment-pad limitation was “unduly limiting in the context of claims directed at the bus bar feature.” J.A. 106–07. Though the reissue claims retained the requirement of “an attachment pad,” the

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<sup>2</sup> As amended, claim 1 required:  
An integrated circuit package comprising:

(a) a lead frame comprising:  
a die attach platform; and  
a plurality of elongated leads which are electrically isolated from said die attach platform, each of said elongated leads including a *circular portion formed as an attachment pad*; and

(b) a substrate, having first and second surfaces on opposite sides of said substrate, for providing rigid support to said lead frame, said substrate contacting said lead frame on said first surface and having vias of non-circular cross sections to allow electrical connections between said first and second surfaces.

J.A. 305–06 (emphasis added).

circular shape requirement was omitted.<sup>3</sup> The examiner rejected the reissue claims under 35 U.S.C. § 251 as being an improper recapture of subject matter surrendered during prosecution of the '423 patent. The examiner noted that the circular-attachment-pad limitation, which was added during prosecution of the '423 patent, had been “argued to be both critical to the invention and distinguishing over the prior art.” J.A. 111–12.

The applicants appealed to the Board, which affirmed the examiner’s rejection of the reissue claims. The Board concluded that the reissue claims impermissibly recaptured subject matter surrendered during the prosecution because the reissue claims were broadened with respect to

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<sup>3</sup> Reissue claim 11 is illustrative:  
An integrated circuit package comprising:

a lead frame including a die attach platform, a plurality of contacts that are spaced apart from the die attach platform and *a bus bar* that is positioned between the die attach platform and at least some of the contacts, wherein bottom surfaces of the die attach platform, the contacts and the bus bar are substantially co-planar, and wherein each of the contacts includes *a portion that forms an attachment pad*;

a die carried by the die attach platform and electronically connected to the bus bar and at least some of the contacts; and

a protective casing covering the die and the lead frame while leaving bottom surfaces of the die attach platform, the bus bar and the conductive contacts exposed, wherein encapsulation material that forms the protective casing is exposed at a bottom surface of the package to physically isolate the bus bar from at least some of the conductive contacts, whereby the attachment pads are exposed at the bottom surface of the package.

J.A. 204 (emphases added).

the patented claims by eliminating the requirement that the attachment pads be circular, and the reissue claims were not materially narrowed in other respects so as to avoid the recapture rule. *Board Decision*, at 12, 16.

The applicants timely appealed. This court has jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

## DISCUSSION

### I

Under the reissue statute, a patent holder may seek reissue of an existing patent. *See* 35 U.S.C. § 251. The statute provides that:

Whenever [the] patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the Director shall . . . reissue the patent for the invention disclosed in the original patent . . . . No new matter shall be introduced into the application for reissue.

*Id.* It is well established, however, that a patentee may not “regain[ ] through reissue the subject matter that he surrendered in an effort to obtain allowance of the original claims.” *In re Clement*, 131 F.3d 1464, 1468 (Fed. Cir. 1997); *see also Mentor Corp. v. Coloplast, Inc.*, 998 F.2d 992, 995 (Fed. Cir. 1993). Under this rule against recapture, “claims that are broader than the original patent claims in a manner directly pertinent to the subject matter surrendered during prosecution are impermissible.” *Clement*, 131 F.3d at 1468 (internal citation and quotation marks omitted). “Whether the claims of a reissue patent violate 35 U.S.C. § 251, and thus are invalid, is a question of law, which we review de novo.” *N.*

*Am. Container, Inc. v. Plastipack Packaging, Inc.*, 415 F.3d 1335, 1349 (Fed. Cir. 2005).

Application of the recapture rule is a three step process. *Clement*, 131 F.3d at 1468; *see also N. Am. Container*, 415 F.3d at 1349; *Pannu v. Storz Instruments, Inc.*, 258 F.3d 1366, 1371 (Fed. Cir. 2001). The first step is to “determine whether and in what ‘aspect’ the reissue claims are broader than the patent claims.” *Clement*, 131 F.3d at 1468. “[A] reissue claim that deletes a limitation or element from the patent claims is broader” with respect to the modified limitation. *Id.* Next, the court must “determine whether the broader aspects of the reissue claims relate to surrendered subject matter.” *Id.* at 1468–69. “To determine whether an applicant surrendered particular subject matter, we look to the prosecution history for arguments and changes to the claims made in an effort to overcome a prior art rejection.” *Id.* at 1469.

Here there is no dispute regarding the first and second steps of the recapture analysis. Both parties agree that the reissue claims are broader than the patented claims and that the broader aspects relate to the surrendered subject matter (i.e., the circular-attachment-pad limitation). Thus, only the third step of the recapture analysis is at issue. In this final step, the court must “determine whether the surrendered subject matter has crept into the reissue claim.” *Id.* In discussing this third step, it is important to distinguish among the original claims (i.e., the claims before the surrender), the patented claims (i.e., the claims allowed after surrender), and the reissue claims. Violation of the rule against recapture may be avoided under this final step of the analysis if the reissue claims “materially narrow” the claims relative to the original claims such that full or substantial recapture of the subject matter surrendered during prosecution is

avoided. *N. Am. Container*, 415 F.3d at 1349; *see also Pannu*, 258 F.3d at 1371; *Clement*, 131 F.3d at 1470.

To avoid violation of the rule against recapture in this way, the narrowing must relate to the subject matter surrendered during the original prosecution (i.e., the applicant cannot recapture the full scope of what was surrendered). *See N. Am. Container*, 415 F.3d at 1350; *Pannu*, 258 F.3d at 1372; *Clement*, 131 F.3d at 1471. For example, in *North American Container*, the original claims were directed to a one-piece, blow-molded plastic bottle. 415 F.3d at 1338. During prosecution of the original claims, the claims were amended by adding a limitation requiring that the inner walls be “generally convex.” *Id.* at 1340. This amendment was designed to overcome a prior art patent which had “slightly concave” inner walls. *Id.* On reissue, the applicant sought to broaden the patented claims by omitting the “generally convex” limitation, but also narrowed them relative to the original claim scope by requiring a specific relationship between the diameter of the inner walls and the overall diameter of the bottle. *Id.* at 1341–42. We held that the reissue claims violated the recapture rule because the alleged narrowing did not relate to the surrendered subject matter (i.e., the generally convex inner wall limitation added during prosecution). *Id.* at 1350.

Similarly, in *Pannu*, the original “application disclosed a round lens called an ‘optic’ that focuses light on the retina, and two or more elements called ‘haptics’ that are attached to the optic and contact internal tissue in the eye for the purpose of positioning and securing the optic.” 258 F.3d at 1368. To overcome a prior art rejection, the applicant amended the original claims by adding a limitation defining the shape of the haptics as “a continuous, substantially circular arc having a diameter greater than the diameter of said lens body, said arc curved toward

said lens circumference.” *Id.* at 1369. On reissue, the applicant eliminated the limitation on the shape of the haptics, but argued that recapture was avoided because the claims were materially narrowed relative to the original claims by the addition of two limitations relating to the size and positioning of the haptics. *Id.* at 1371–72. We rejected the applicant’s argument because the allegedly narrowing limitations did not relate to the surrendered subject matter (i.e., the shape of the haptics). *Id.* at 1372.

The applicants argue that narrowing is material where the additional claim limitations “render an otherwise invalid claim valid,” whether or not the narrowing is related to the surrendered subject matter. Br. of Appellants at 29. In making this argument, the applicants rely on this court’s decision in *Hester Industries, Inc. v. Stein, Inc.*, 142 F.3d 1472 (Fed. Cir. 1998). The applicants misinterpret *Hester*. In *Hester*, we rejected the applicant’s argument that the added limitations were materially narrowing, finding that the limitations were unrelated to the surrendered subject matter. *Id.* at 1482–83. We did not suggest that the materiality of the allegedly narrowing limitations was determined by whether the limitations rendered the claims patentable.

Thus, a limitation that is added during prosecution to overcome prior art cannot be entirely eliminated on reissue because doing so would constitute recapture of the surrendered subject matter. The limitation may be modified, however, so long as it continues to materially narrow the claim scope relative to the surrendered subject matter such that the surrendered subject matter is not entirely or substantially recaptured.

## II

The Board held here that the third step of the recapture analysis had not been satisfied (i.e., the surrendered subject matter was entirely within the scope of the reissue claims). The Board’s analysis on this point is perplexing. The Board stated that the recapture rule is violated “if the reissue claim omits *or broadens* any limitation that was added/argued during the original prosecution to overcome an art rejection, even if it includes other limitations that narrow the claims in other aspects.” *Board Decision*, at 14. To support this proposition, the Board relied on a portion of § 1412.02 of the Manual of Patent Examining Procedure (“MPEP”), which states in part:

If surrendered subject matter . . . has been in any way broadened in a reissue application, . . . then a recapture rejection under 35 U.S.C. § 251 is proper and must be made for that claim.

MPEP § 1412.02(I)(C), Rev. 7, July 2008. The reference to “broadening” the added limitation or “broadening” the “surrendered subject matter” is confusing. It could mean that the limitation is less restrictive or it could mean that the limitation is more restrictive. The former presents a recapture, while the latter does not. *See N. Am. Container*, 415 F.3d at 1350; *Pannu*, 258 F.3d at 1372; *Clement*, 131 F.3d at 1471. It is far clearer to speak in terms of broadening or narrowing the claims than to speak of broadening or narrowing the “limitation” or the “surrendered subject matter.”

Though the Board went on to analyze whether the claims were materially narrowed “in other respects so as to avoid recapture,” it seems to have defined “materially narrowed” in a manner contrary to our precedent. *See Board Decision*, at 15. Based on this provision of the MPEP, the Board concluded that “[a] limitation materi-

ally narrows the . . . claims if the narrowing limitation is directed to one or more overlooked aspects of the invention.” *Id.* (internal quotations omitted). It then defined “overlooked aspects” of the invention as “patentably distinct (1) inventions; (2) embodiments; or (3) species not originally claimed—not mere incidental features of the originally-claimed invention.” *Id.* at 17. The Board noted that “[t]he latest version of the MPEP confirms this point” by emphasizing that if “the reissue claim(s) are really claiming additional *inventions/embodiments/species* not originally claimed (i.e., *overlooked aspects* of the disclosed invention), then recapture will not be present.” *Id.* at 16; *see also* MPEP § 1412.02(I)(C), Rev. 7, July 2008. Accordingly, the Board concluded that rejection of the reissue claims was proper because the narrowing limitations, which related to the bus bar, were “not directed to distinct inventions; rather they [were] different definitions of the same [bottom-surface-mount embodiment disclosed in the original patent], varying in breadth or scope of definition.” *Board Decision*, at 18.

The Board’s reliance on this portion of the MPEP is misplaced. This portion of the MPEP deals with claims in which there is no need to apply the recapture rule in the first place. The recapture rule is triggered only where the reissue claims are broader than the patented claims because the surrendered subject matter has been reclaimed in whole or substantial part (i.e., an added limitation has been eliminated or revised). *See Clement*, 131 F.3d at 1468–69. In contrast, this portion of the MPEP addresses reissue claims directed at “additional *inventions/embodiments/species* not originally claimed.” Because the subject matter of these claims was “not originally claimed,” it is wholly unrelated to the subject matter that was surrendered during prosecution and the recapture rule is not even triggered. At oral argument,

the PTO conceded this point, noting that this portion of the MPEP is unrelated to recapture.

As discussed above, the recapture rule is violated when a limitation added during prosecution is eliminated entirely, even if other narrowing limitations are added to the claim. If the added limitation is modified but not eliminated, the claims must be materially narrowed relative to the surrendered subject matter such that the surrendered subject matter is not entirely or substantially recaptured.

### III

Here, the applicants argue that recapture is avoided in two ways. First, even though the circular shape requirement has been eliminated, the applicants contend that the “retained attachment pad limitation still narrows the reissue claims in a manner germane to the prior art rejections in the original prosecution.” Br. of Appellants at 44. The applicants urge that they have avoided the recapture rule because they have not broadened the claims to encompass *everything* that was surrendered during prosecution. This argument is plainly contrary to our precedent. Here there is no dispute that the reissue claims are broader than the patented claims. Where this is the case, the recapture rule is avoided only if the claims are materially narrowed in a way that avoids recapture of the surrendered subject matter. *See N. Am. Container*, 415 F.3d at 1350; *Pannu*, 258 F.3d at 1372; *Clement*, 131 F.3d at 1471. Thus, the mere argument that the reissue claims constitute only a partial recapture is insufficient without a corresponding demonstration of material narrowing. Retention of the attachment pad limitation is related to the surrendered subject matter, but is not materially narrowing because the use of an attachment

pad was well known in the prior art.<sup>4</sup>

Second, the applicants argue that the reissue claims “each have a number of limitations that are narrowing relative to the surrendered [subject matter].” Br. of Appellants at 29. Specifically, the applicants rely on limitations related to the bus bar, which require that: (1) the “bottom surfaces of the die attach platform, the contacts and the bus bar [be] substantially co-planar,” (2) the “protective casing cover[ ] the die and lead frame while leaving bottom surfaces of the die attach platform, the bus bar and the conductive contacts exposed,” and (3) the protective casing “physically isolate the bus bar from at least some of the conductive contacts.” J.A. 204. While these limitations certainly narrow the reissue claims relative to the original claims, the narrowing is related only to the bus bar, not the circular attachment pad. In other words, the narrowing limitations are unrelated to the surrendered subject matter and thus insufficient to avoid recapture.

#### IV

We thus affirm the rejection of claims 11–23 in the applicants’ reissue application.

#### **AFFIRMED**

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<sup>4</sup> As part of the “background of the invention,” U.S. Patent Number 5,796,589 col.1 ll.39–44 (filed Dec. 20, 1995), which was relied on by the examiner in the original prosecution, discloses the use of “solder pads” (i.e., attachment pads).