

**UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS**

PALOMAR TECHNOLOGIES, INC.,)	
)	
Plaintiff,)	
)	Civil Action No.
v.)	18-10236-FDS
)	
MRSI SYSTEMS, LLC,)	
)	
Defendant.)	
)	

**MEMORANDUM AND ORDER
ON CROSS-MOTIONS FOR SUMMARY JUDGMENT**

SAYLOR, C.J.

This is a patent infringement dispute between two companies involved in the production and distribution of “die attach” systems. Plaintiff Palomar Technologies, Inc. has brought suit against defendant MRSI Systems, LLC, asserting a claim for patent infringement pursuant to 35 U.S.C. § 271.¹

Palomar is the owner and assignee of U.S. Patent No. 6,776,327 (“the ’327 Patent”), entitled “High-Accuracy Placement Method Using Double Pick and Place.” Palomar contends that several products manufactured by MSRI infringe the ’327 Patent.

MRSI has moved for summary judgment in its favor on the issue of patentability under 35 U.S.C. § 101. In substance, MRSI contends that the patent claims a fundamental and abstract idea that is not patentable. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 573 U.S. 208, 217 (2014); *Mayo Collaborative Servs. v. Prometheus Labs.*, 566 U.S. 66, 70 (2012). Palomar

¹ The complaint also asserts claims for induced patent infringement and contributory infringement.

has cross-moved for summary judgment on a variety of affirmative defenses asserted by MRSI, including the issue of patentability.

The claimed invention provides a method for “placement of a first workpiece onto a second workpiece.” (’327 Patent at [57]). “The first workpiece is initially positioned at an origination location,” and the second workpiece is at an “attach location.” (*Id.*). Rather than move the first workpiece from the origination location directly to the attach location, the method provides that it first be placed at an “intermediate location.” (*Id.*). From there, a computer recalculates the pathway to the attach location, and the workpiece is moved again. (*See generally* ’327 Patent col. 2 ll. 35–64). According to the patent, that method provides for a high degree of accuracy of placement of the piece at the attach location. (*Id.* col. 1 ll. 49–51).

At first blush, the patent appears to cover a sophisticated method for using robotics and computer analytics to assemble electronic parts, such as computer chips, with high precision. The specification of the claimed invention describes a process that permits the precise placement of parts within microns of the desired location.

Upon closer inspection, however, there is dramatically less to the claimed invention than meets the eye. The claims do not mention robotics, computers, or software.² Instead, the claims simply refer to the movement of “workpieces” from one location to another. The precise placement of those workpieces is actually achieved by machinery and software that is not covered by the patent. And the claims use relatively complex phrasing to describe what is in reality a simple idea: if you move a part closer to the point of assembly (that is, to an “intermediate” location) before installing it, it is easier to make its final placement more

² Two dependent claims, Claims 17 and 18, refer respectively to the placement of workpieces in the form of a “die” and a “circuit body.” (’327 Patent col. 14 ll. 24–27).

accurate.³ That concept is so basic that it has been known to human beings for millennia.

A simple analogy will illustrate the point. The object of the game of golf is to put a small ball in a small hole. It is extremely difficult to do so in one stroke, from the tee—so much so that it is cause for celebration when a golfer does so. But if the ball is first hit onto the fairway—or, better yet, the green—it becomes dramatically easier to put the ball in the hole. The closer the ball is to the hole, the easier it is to sink the putt.

To use the terminology of the patent, the golf ball (the “workpiece”) on the tee (the “origination location”) is hit (“placed”) onto the fairway or green (the “intermediate location”). At that point, the brain of the golfer (effectively, a computer) recalculates the approach (the “target path”) to the hole (the “target location”). That recalculation permits him to greatly improve the accuracy of his next shot. Of course, he may not sink the ball in two strokes, but his second shot is substantially more likely to be on target than the first.

Other analogies in daily life abound.⁴ For example, an unlucky motorist who gets a flat tire typically takes the spare out of the trunk (the “origination location”) and places it on the ground (an “intermediate location”) before lining up the holes in the wheel of the spare with the studs (the “target location”) to mount it on the car. And the same principle applies to the assembly of almost any kind of object, such as a carpenter building a house⁵ or a child making a sandwich.⁶ Even as simple an operation as putting a nut on a bolt is exceedingly difficult to do

³ In fact, the ‘327 Patent claims the even broader idea of simply using an intermediate location, irrespective of its distance to the target final location. The specification, however, describes the key concept: that “placement accuracy may [] be enhanced if the second place distance of the second place step is small relative to the first place distance of the first place step” (‘327 Patent col. 12 ll. 63–65).

⁴ To use other analogies from the world of sports: in baseball, a runner is more likely to be thrown out at home plate if the outfielder hits the cutoff man, and in basketball, a long pass to a player near the basket is more likely to result in a score than a long shot from mid-court.

⁵ For example, a carpenter might move window and door assemblies from the truck (the “origination location”) to one or more staging areas (“intermediate locations”) before installation at the “target locations.”

⁶ For example, a child might take a slice of bread (the “first workpiece”) out of the bag (the “origination

in a single continuous unbroken motion—which is why people pause briefly (at an “intermediate location”) to line up the nut before threading it on.

In short, the closer an object is to a target, the easier it is to place the object accurately. Such a basic and abstract idea is not patentable. And that is true whether or not the idea is garbed in complex terminology, or used in the extremely sophisticated world of chip manufacture. Indeed, if the patent is valid, Palomar owns the rights to a fairly wide swath of human activity; the two independent claims are so broad that the hypothetical motorist, carpenter, and sandwich-making child would literally infringe both independent claims.

Accordingly, the ’327 Patent claims ideas that are not patentable under 35 U.S.C. § 101. It is therefore invalid, and summary judgment will be granted to the defendant.

I. Background

A. Factual Background

The following facts are undisputed except as otherwise noted.

1. Palomar Technologies

Palomar Technologies, Inc., provides, among other things, “die-attach solutions” and “precision assembly services.” (Compl. ¶ 2, ECF 1). Palomar’s systems are used to manufacture “LED, optoelectronic, solar, RF and microelectronic packages in the photonic, wireless, microwave, automotive, aerospace, defense, medical and life science industries.” (*Id.*).

2. The ’327 Patent

The ’327 Patent generally relates to a “method for high accuracy placement of a first workpiece onto a second workpiece for attachment of the two workpieces.” (’327 Patent col. 1

location”) to the countertop (the “intermediate location”) next to another slice (the “second workpiece”) before placing the top on the bottom (the “target location”) after application of peanut butter and jelly.

ll. 7–9). More particularly, the patent relates to a “high accuracy [automated] placement method which utilizes double pick and place of the first workpiece to enhance the final placement accuracy of the first workpiece onto the second workpiece.” (*Id.* col. 1 ll. 9–13).

According to the patent, in the production of many electronic applications, dies, or tiny semiconductor devices, are attached to circuit bodies. (*Id.* col 1 ll. 16–24). The process of attaching a die to a circuit body typically involves an initial step, called a “pick and place” operation, in which “the die is picked from a remote location by a tool and placed on the circuit body at the location where attachment is desired.” (*Id.* col. 1 ll. 25–28).

According to the patent, automated die-attach techniques were already known and used, although the conventional techniques were not able to perform pick and place operations in a manner sufficiently accurate for emerging industries, such as the optical communications industry. (*Id.* col. 1 ll. 33–35, 42–45). The ’327 Patent purports to distinguish itself from these earlier techniques by stating that it provides an automated placement method that is “both time efficient and highly accurate.” (*Id.* col. 1 ll. 49–51).

The patent’s placement method involves two steps. Initially, the “first workpiece, which is preferably a die,” is “positioned at the origination location.” (*Id.* col. 1 ll. 63–64; *Id.* col. 2 ll. 8). During the “first place step,” the first workpiece is “displace[d] . . . from the origination location to an intermediate location different from the origination and attach locations.” (*Id.* col. 1 ll. 66–67; *Id.* col. 2 ll. 1–2). Then, during the “second place step,” the first workpiece is “displace[d] . . . from the intermediate location to the attach location and the first workpiece is attached to the second workpiece at the attach location.” (*Id.* col. 2 ll. 2–5).

3. MRSI Systems, LLC

MRSI Systems, LLC designs, manufactures, and supplies “fully automated, ultra-high

precision die-attach and epoxy dispensing tools,” including the “MRSI-M3 Assembly Work Cell.” (Compl. ¶ 12, ECF 1; Ans. ¶ 4, ECF 23). According to Palomar, certain MRSI products utilize a method that infringes on the ’327 Patent. (Compl. ¶¶ 10-15, ECF 1).

B. Procedural Background

On July 6, 2015, Palomar filed this action against MRSI in the Southern District of California. (*See* Compl. at 1, ECF 1). On October 13, 2015, MRSI petitioned the Patent Trial and Appeal Board (“PTAB”) for *inter partes* review (“IPR”) of the patent. (*See* ECF 113-1) (PTAB IPR2016-00043). That petition requested that an IPR be instituted as to all 48 claims of the patent on one or more of six grounds. (ECF 113-1 at 1-9).

On April 7, 2016, the PTAB instituted review on each of the six grounds raised in the petition. (ECF 113-2). On March 29, 2017, the PTAB issued its final written decision. (ECF 113-3). That decision upheld the validity of claims 1-47 and invalidated claim 48. (ECF 113-3). MRSI did not appeal.

Palomar’s action against MRSI had been stayed by the Southern District of California during the IPR proceedings. Following the IPR proceedings, the litigation was resumed.

On February 5, 2018, the action was transferred to this Court. (ECF 53).

On May 16, 2019, the Court issued a memorandum and order on claim construction that construed fourteen disputed terms. (ECF 427).

Both parties have now moved for summary judgment. MSRI has moved for summary judgment under the abstract ideas and natural law exceptions to 35 U.S.C. § 101. (ECF 481).

Palomar has moved for partial summary judgment on the issues of literal infringement, MSRI’s claim of invalidity under 35 U.S.C. § 101, MSRI’s claims of invalidity under 35 U.S.C. § 112, and MSRI’s public use defense. (ECF 466, 473, 454, and 561).

II. Legal Standard

The role of summary judgment is to “pierce the pleadings and to assess the proof in order to see whether there is a genuine need for trial.” *Mesnick v. Gen. Elec. Co.*, 950 F.2d 816, 822 (1st Cir. 1991) (internal quotation mark omitted). Summary judgment is appropriate when the moving party shows that “there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). “Essentially, Rule 56[] mandates the entry of summary judgment ‘against a party who fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial.’” *Coll v. PB Diagnostic Sys., Inc.*, 50 F.3d 1115, 1121 (1st Cir. 1995) (quoting *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986)). In making that determination, the court must “view the record in the light most favorable to the nonmovant, drawing reasonable inferences in his favor.” *Noonan v. Staples, Inc.*, 556 F.3d 20, 25 (1st Cir. 2009). When “a properly supported motion for summary judgment is made, the adverse party must set forth specific facts showing that there is a genuine issue for trial.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 250 (1986) (internal quotation marks and footnotes omitted). The non-moving party may not simply “rest upon mere allegation or denials of his pleading,” but instead must “present affirmative evidence.” *Id.* at 256–57.

Because “[a] patent shall be presumed valid,” 35 U.S.C. § 282, a defendant arguing invalidity must prove that defense by clear and convincing evidence. *Microsoft Corp. v. i4i Ltd. Partnership*, 564 U.S. 91, 100 (2011). This heightened burden applies even at the summary judgment stage. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 254 (1986) (“[I]n ruling on a motion for summary judgment, the judge must view the evidence presented through the prism of the substantive evidentiary burden.”). The Federal Circuit has indicated that this presumption

applies with full force when the invalidity challenge is brought under the “abstract ideas” exception to § 101. *Cellspin Soft, Inc. v. Fitbit Inc.*, 927 F.3d 1306, 1319 (Fed. Cir. 2019) (“This presumption reflects the fact that the Patent and Trademark Office has already examined whether the patent satisfies ‘the prerequisites for issuance of a patent,’ including § 101.”) (quoting *Microsoft Corp. v. i4i Ltd. Partnership*, 564 U.S. 91, 95–96 (2011)).

III. Analysis

As noted, both parties have filed cross-motions on the issue of invalidity under 35 U.S.C. § 101; in substance, MRSI contends that the claims of the ’327 Patent cover an abstract idea, and Palomar contends that they do not. In addition to those motions, Palomar has moved for summary judgment on the issues of literal infringement, MRSI’s public-use defense, and MRSI’s § 112 defenses. For the following reasons, MRSI’s invalidity motion under 35 U.S.C. § 101 will be granted and Palomar’s cross-motion on the same subject will be denied. All other motions will be denied as moot.

A. Invalidity Under 35 U.S.C. § 101

An invention is generally patentable if it qualifies as a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. However, “this provision contains an important implicit exception. Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Mayo Collaborative Servs. v. Prometheus Labs.*, 566 U.S. 66, 70 (2012) (citing *Diamond v. Diehr*, 450 U.S. 175, 185 (1981)). In applying this exception, a court “must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more.” *Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 573 U.S. 208, 217 (2014) (internal quotations omitted).

The framework for making that distinction involves a two-step process. At step one, the

court determines “whether the claims at issue are directed to one of those patent-ineligible concepts” that is so abstract as to “risk disproportionately tying up the use of [] underlying ideas.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 73). If step one is answered affirmatively, the court continues to step two. At step two, the court looks for an “inventive concept,” namely “an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.” *Id.* at 217–18 (internal quotations omitted).

1. Representative Claim

As an initial matter, the Court must determine which claims of the ’327 Patent to analyze to resolve the pending motion. Palomar has asserted infringement as to claims 1–24 of the ’327 Patent, and MRSI alleges that each asserted claim is invalid under § 101. “Courts may treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim or if the parties agree to treat a claim as representative.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018) (citing *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1352 (Fed. Cir. 2016); *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1316 & n.9 (Fed. Cir. 2016)).

The parties have not agreed to treat any claim as representative. MRSI contends that the two independent claims, claims 1 and 24, are “substantially similar,” but does not appear to advocate for treating either claim as representative. (ECF 481 at 7). Although Palomar agrees that claims 1 and 24 are “very similar,” (ECF 473 at 9), it focuses its argument on independent claim 24, stating it is the “broadest claim” of the ’327 patent. (ECF 473 at 9; ECF 532 at 4).

However, claim 1 presents a better representative claim than claim 24. Claim 1 recites:

A method for placement of a first workpiece onto a second workpiece comprising the steps of:

- a) providing a first workpiece positioned at an origination location different from a target intermediate location;
- b) providing a second workpiece positioned at a work location and having a target attach location different from said target intermediate location and said origination location;
- c) performing a first place step to displace said first workpiece from said origination location to an actual intermediate location, wherein said actual intermediate location is different from said origination location and is identical to said target intermediate location or differs from said target intermediate location by an intermediate error deviation; and
- d) performing a second place step to displace said first workpiece from said actual intermediate location to an actual attach location on said second workpiece, wherein said actual attach location is different from said origination location and said target intermediate location and is identical to said target attach location or differs from said target attach location by an attach error deviation.

(’327 patent col. 13, ll. 14–37). That claim includes certain limitations not found in claim 24: the second workpiece must be “positioned at a work location,” (*id.* at col. 13, ll. 19–20), the “target attach location” must be different from the “target intermediate location,” (*id.* at col. 13, ll. 19–21), the “actual intermediate location” must be different than the “target intermediate location,” (*id.* at col. 13, ll. 25–26), and the “actual attach location” must be on the second workpiece and be different from the “original location” and the “target intermediate location,” (*id.* at col. 13, ll. 32–35).

Palomar does not present arguments that these additional limitations in claim 1 are of “distinctive significance” to any other claims, and there is no obvious reason to conclude otherwise. However, by choosing the narrower of the two independent claims, the Court’s analysis will, at least in this context, necessarily encompass claim 24. Furthermore, all 22 dependent claims at issue rely on claim 1, simplifying additional analysis down the line. As a

result, the Court will treat claim 1 as representative for the initial analysis under the *Alice* framework.⁷

2. The Claims Are Directed to a Patent-Ineligible Abstract Concept

The Court must first determine if the claims in question are “directed to” a patent-ineligible abstract idea.⁸

Because “[a]t some level, all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomenon, or abstract ideas,” *Alice*, 573 U.S. at 217 (quotations omitted), “it is not enough to merely identify a patent-ineligible concept underlying the claim; [the court] must determine whether that patent-ineligible concept is what the claim is *directed to*.” *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1349 (Fed. Cir. 2017) (internal quotations omitted). In pursuing that inquiry, “the claims are considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter.” *Internet Patents Corp. v. Active Network Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015). Although “the specification may . . . be useful in illuminating whether the claims are ‘directed to’ the identified abstract idea . . . any reliance on the specification in the § 101 analysis must always yield to the claim language.” *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 768–69 (Fed. Cir. 2019) (internal citations omitted).

Delineating the bounds of the “abstract ideas” category has proved somewhat elusive. At one end of the spectrum, the caselaw makes clear that algorithms and mathematical formulas expressing “fundamental truths” are squarely within the realm of unpatentable abstract ideas.

⁷ Because the parties have not agreed to treat this claim as representative, the Court will briefly consider all dependent claims at both stages of the analysis as well.

⁸ For the sake of simplicity, the Court will use the term “abstract idea” to describe non-patentable subject matter, although the label is imprecise and the prohibition also extends to matters such as “laws of nature” and “natural phenomena.” See *Mayo*, 566 U.S. at 70.

See *Alice*, 573 U.S. at 218 (citing *Gottschalk v. Benson*, 409 U.S. 63, 71-72 (1972); *Parker v. Flook*, 437 U.S. 584 (1978)). However, abstract ideas are not limited to “preexisting, fundamental truths that exist in principle apart from any human action.” *Alice*, 573 U.S. at 220 (internal quotations omitted). A patent merely covering an application of an otherwise general practice, even a complex practice, may be directed to an abstract idea. See, e.g., *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (holding that “[t]he concept of hedging [financial transactions]” was a patent-ineligible “abstract idea, just like the algorithms at issue in *Benson* and *Flook*”).

No clear boundaries have been drawn around the category of ineligible abstract ideas. In fact, the Supreme Court has rejected the creation of categorical rules for determining patent-ineligible subject matter in favor of resolving cases narrowly. See *Bilski*, 561 U.S. at 609 (refusing to conclude that business-process claims at issue were categorically unpatentable). Instead, courts “have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016); see also *Alice*, 573 U.S. at 221 (“[W]e need not labor to delimit the precise contours of the ‘abstract ideas’ category in this case. It is enough to recognize that there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement at issue here. Both are squarely within the realm of ‘abstract ideas’ as we have used that term.”). Claim 1 of the ‘327 Patent must therefore be placed in context within the caselaw.

Palomar points to cases in which patents claiming new or improved processes for accomplishing known technical problems were held not to be directed toward abstract ideas. For example, in *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir.

2016), the court found claims relating to “specific asserted improvement in computer animation” were not directed towards a patent-ineligible abstract idea. The reasoning of the *McRO* court was based on the specificity of the ordered rules within the claim and the fact that the outcome itself—lip-synched computer animation—was not covered by the patent. *See id.* at 1316 (“Here, the structure of the limited rules reflects a specific implementation not demonstrated as that which any [animator] engaged in the search for [an automation process] would likely have utilized. By incorporating the specific features of the rules as claim limitations, claim 1 is limited to a specific process for automatically animating characters using particular information and techniques and does not preempt approaches that use rules of a different structure or different techniques.”) (internal quotations omitted). Palomar contends that *McRO* stands for the proposition that a new method of accomplishing a previously known outcome, if specific enough so as to not preempt the outcome itself, is patent-eligible. It argues that this sentiment is echoed in *Diamond v. Diehr*, where the claims employed a detailed process “to solve a technological problem in conventional industry practice” by improving the molded-rubber curing process. *Alice*, 573 U.S. at 223 (internal quotations omitted) (citing *Diamond*, 450 U.S. at 177-178).

Palomar contends that these cases are analogous because the ’327 Patent describes a method for solving a known “technological problem in conventional industry practice” in a specific field. *Alice*, 573 U.S. at 223. In other words, it contends that the patent simply claims one possible method to solve the technical problem in chip manufacture of accurately picking and placing pieces, not the abstract idea of accurately placing pieces using two steps. In Palomar’s view, then, the patent does not preempt the entire field, because the outcome of accurately placing minute pieces remains unpatented.

In response, MRSI argues that the process claimed in the patent is simply the abstract

idea of accurately placing an item by moving it to an intermediate location before final placement. Put differently, the claims describe only the “basic conceptual framework of moving a component from a first point to a different desired second point, and then to a third and final desired point for attachment.” (Def. Mem. In Supp., 14, ECF 481). MRSI contends that the patent attempts to package an abstract idea as a technical solution, but the patent is devoid of specific limitations beyond that abstract idea itself.

A method or process, even if covering only one method of accomplishing an identifiable outcome, is not patentable if the method is an abstract one. Here, the claims of the ’327 Patent, taken as a whole, are clearly directed to an abstract idea: placing an item at a final location more accurately by first moving it to an intermediate location. The patent accomplishes a much broader goal in a much less specific way than the patents found in *Diehr* and *McRO*.⁹ Both of those cases concerned patents claiming methods so specific and concrete as to lack application beyond their express uses of curing molded rubber and animating computer-lip synchronization, respectively.

By contrast, in *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014), the patent at issue concerned an 11-step “process of receiving copyrighted media, selecting an ad, offering the media in exchange for watching the selected ad, displaying the ad, allowing the consumer access to the media, and receiving payment from the sponsor.” The court found that claim to be directed to the abstract idea of “displaying an advertisement in exchange for access to copyrighted media.” *Id.* at 714. This was so even though “certain additional limitations, such as consulting an activity log, add a degree of particularity,” because “the concept *embodied by the*

⁹ *Diehr* predates *Alice* by almost three decades. It is at least somewhat unclear if the same result would be reached under the *Alice* analytical framework.

majority of the limitations describes only the abstract idea of showing an advertisement before delivering free content.” *Id.* at 715 (emphasis added). *Ulramercial* thus sets out an important limitation on *McRO* and *Diehr*: a process or method patent may nonetheless be directed toward an abstract idea if the “the majority of the limitations” are “devoid of a concrete or tangible application.” *Id.*

The lack of a “concrete or tangible” application of the ‘327 Patent is readily apparent when considering representative claim 1 on a stand-alone basis. *See ChargePoint, Inc.*, 920 F.3d at 768-69 (“[A]ny reliance on the specification in the § 101 analysis must always yield to the claim language.”). Claim 1 covers an almost infinite breadth of applications. As noted above, it literally applies to a huge number of human activities, far beyond the sophisticated assembly of microprocessor chips. *Cf. Alice*, 573 U.S. at 216 (“We have ‘repeatedly emphasized this . . . concern that patent law not inhibit further discovery by improperly tying up the future use of’ these building blocks of human ingenuity.”) (quoting *Mayo*, 566 U.S. at 85). It is so sweeping that manufacturing, assembly, and construction processes in countless industries, to say nothing of routine daily tasks, literally infringe it.

Furthermore, the mere labelling of simple concepts, such as “error deviations,” does not add sufficient particularity to an otherwise abstract idea. “[T]he concern that drives” the abstract ideas exception to patentability is “one of preemption.” *Alice*, 573 U.S. at 216. As claim 1 is written, a two-step placement, done in any number of ways using any manner of materials, risks infringement.

The fact that the patent arguably may be characterized as a manufacturing method patent does not require a different conclusion.¹⁰ Palomar is correct that much of the recent caselaw in the field has focused on patents addressing computer automation of existing processes. *See, e.g.*,

¹⁰ Whether the ‘327 Patent actually describes a manufacturing method is an open question that need not be resolved here.

Alice, 573 U.S. at 225 (holding that computerized mediated financial intermediation was abstract idea); *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d at 1314 (“Characterizing e-mail based on a known list of identifiers is no less abstract. The patent merely applies a well-known idea using generic computers.”). But no court has held that the category of patent-ineligible abstract ideas is *limited to* those sorts of claims. *Cf. American Axle & Mfg., Inc. v. Neapco Holdings LLC*, 939 F.3d 1355, 1365 (Fed. Cir. 2019) (finding claims to a manufacturing method as directed to a “natural law concept without specifying the means of how to implement that concept”).

Furthermore, although the patent ostensibly covers processes that occur in the physical world of manufacturing, that does not mean it cannot be abstract. Abstract need not mean “intangible” in a physical sense. *See In re Marco Guldenaar Holding B.V.*, 911 F.3d 1157, 1161 (Fed. Cir. 2018) (“Appellant also argues that his claimed method of playing a dice game cannot be an abstract idea because it recites a physical game with physical steps. We disagree, because the abstract idea exception does not turn solely on whether the claimed invention comprises physical versus mental steps.”) (internal citations omitted); *see also Wyeth v. Stone*, 30 F. Cas. 723, 727 (C.C.D. Mass. 1840) (holding that one cannot patent the “art of cutting ice by means of any power, other than human power,” because it was “a claim for an art or principle in the abstract, and not for any particular method or machinery, by which ice can be cut”). The ’327 Patent is best characterized as directed to an abstract idea that applies to manufacturing methods, rather than to a manufacturing method outright.

In summary, considered in its entirety, and focusing on the actual language of the claims, the ’327 Patent is directed to the abstract (indeed, commonplace) idea of placing an item at an intermediate location before moving it to a final one in order to increase the accuracy of the final

placement.¹¹

Because the parties have not agreed to a representative claim, the Court will briefly address the 22 asserted dependent claims. Those dependent claims include an attachment step (Claims 2, 14–16, 20, 23); recite following a “place path” when displacing a workpiece (Claims 3 and 4); recite the use of a generic “pickup tool” (Claims 5–10); limit the error deviations (Claims 11–13); limit workpieces to a die or a circuit body (Claims 17 and 18); recite conducting the process in pairs (Claims 19–23); and require the origination locations be on a carrier (Claim 21). None of those additional limitations alter what the claims are directed to; they merely apply the abstract idea in a generic or conventional fashion. That does not alter the step-one analysis. *See In re TLI Communications LLC Patent Litigation*, 823 F.3d 607, 613 (Fed. Cir. 2016) (“[L]imit[ing] the abstract idea to a particular environment . . . does not make the claims any less abstract for the step 1 analysis.”). *See also Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014) (affirming the district court’s approach of not addressing each claim at issue because the additional claims were “substantially similar and linked to the same abstract idea”).

Thus, like representative claim 1, dependent claims 2-23 of the ’327 Patent are directed to the abstract idea of placing an item at an intermediate location before moving it to a final one.

3. The Claims Lack a Sufficiently Inventive Concept for Patentability

Having concluded that the claims of the patent are directed to an abstract idea, the asserted claims must be examined for a sufficiently “inventive concept” to “transform” the abstract idea in a “patent-eligible application.” *Alice*, 573 U.S. at 221.

That examination requires the court to “consider the elements of each claim both

¹¹ As noted below, that conclusion also necessarily holds for claim 24.

individually and as an ordered combination.” *Id.* at 217. The inquiry searches for “an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.” *Id.* at 217-18 (internal quotations omitted). “An inventive concept reflects something more than the application of an abstract idea using ‘well-understood, routine, and conventional activities previously known to the industry.’” *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1316 (Fed. Cir. 2019) (quoting *Alice*, 573 U.S. at 225)). “The question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018).

The ’327 Patent claims lack the necessary inventive concept to survive scrutiny under that requirement. *Mayo* provides an instructive starting point. In that case, the patents at issue claimed “a method for measuring metabolites in the bloodstream in order to calibrate the appropriate dosage of thiopurine drugs in the treatment of autoimmune disease.” *Alice*, 573 U.S. at 221 (citing *Mayo*, 566 U.S. at 73-4). After determining that the claims were directed to a natural law, the Supreme Court held that “simply appending conventional steps, specified at a high level of generality,” was insufficient to supply the necessary “‘inventive concept.’” *Mayo*, 566 U.S. at 82.

That same analysis applies here. The claims of the patent, when viewed individually or in ordered combination, do little more than recite generalized terminology for the conventional steps that constitute the abstract idea of the placement of a component utilizing an intermediate location.

Considering the elements of claim 1 further illustrates this point. Again, the four elements of claim 1 are:

- a) providing a first workpiece positioned at an origination location different from a target intermediate location;
- b) providing a second workpiece positioned at a work location and having a target attach location different from said target intermediate location and said origination location;
- c) performing a first place step to displace said first workpiece from said origination location to an actual intermediate location, wherein said actual intermediate location is different from said origination location and is identical to said target intermediate location or differs from said target intermediate location by an intermediate error deviation; and
- d) performing a second place step to displace said first workpiece from said actual intermediate location to an actual attach location on said second workpiece, wherein said actual attach location is different from said origination location and said target intermediate location and is identical to said target attach location or differs from said target attach location by an attach error deviation.

(‘327 patent col. 13 ll. 14-37). There is nothing non-conventional or non-generalized about any of those elements, considered on an individual basis. For example, calling something a “first workpiece” or a “target intermediate location” simply applies a generic label to a very ordinary two-step placement process.

Claim 1 fares no better when the elements are considered as an ordered combination. Again, the claim involve a single, simple idea: a two-step placement process, which it describes in generic terms. It involves no novel ideas or steps. And it does not even limit that abstract idea to specific machinery or a specific type of software. Furthermore, although the specification points to the object of the patent as an automated placement method, the claims themselves do not actually include any limitations narrowing the method in an automated manner.¹² In short, there is simply nothing in claim 1 that could reasonably be considered an inventive concept.

¹² That is not to say that if claim 1 were automated the necessary inventive concept would exist. But claim 1 does not even include the automated step that the specification describes. Nor, for that matter, does it include any sort of limitation involving the timing of the process, despite the specification claiming that “it is the object of the present invention to provide an automated placement method which is both time efficient and highly accurate.” (‘327 Patent col. 1 ll. 49-51).

The dependent claims of the '327 Patent are essentially no different. In *Alice*, the Supreme Court was faced with patent claims directed to the abstract idea of “intermediated settlement.” 573 U.S. at 219. The Court found that the patent at issue did little more than “instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer,” and thus lacked the necessary inventive concept to be patentable. *Id.* at 225. Just as commanding a practitioner to “apply” a natural law was not enough in *Mayo*, commanding a practitioner to “apply [an abstract idea] with a computer” was found deficient in *Alice*. *Id.* at 223. This sort of “wholly generic computer implementation” does not supply the “additional feature[s]” necessary to provide “practical assurance that the process is more than a drafting effort to monopolize the abstract idea itself.” *Id.* (quoting *Mayo*, 566 U.S. at 77).

Here, the dependent claims do not even involve the use of a generic computer to perform the placement. Each claim depending from claim 1—claims 2 through 23—only incorporates one or more conventional tools or generic limitations. The limitations of the dependent claims include actually attaching the two workpieces at the attach location (claim 2), identifying paths taken by the workpieces (claims 3–4), using a generic “pickup tool” to conduct the displacements and placements (claims 5–10), limiting or specifying error deviations (claims 11–13), utilizing soldering, or “thermal[] attach[ment]” to connect the workpieces (claims 14–16), limiting the first workpiece to a “die” (claim 17), limiting the second workpiece to a “circuit body” (claim 18), and conducting the double-pick and place in pairs, with or without a “carrier” (claims 19–23). (*See* '327 Patent cols.13–15 ll. 13:38–15:41).

But nothing in the specification of the '327 Patent discloses that any of the limitations within the dependent claims are at all inventive. Indeed, on the contrary, the limitations to physical components are expressly described in the specification as conventional. (*See, e.g., id.*

col 5, ll. 24-28 (“A circuit body is broadly defined herein as any structure to which a die is conventionally attached”); *id.* col. 5, ll. 34-36 (“[T]he carrier is any conventional support structure for a displaceable workpiece prior to assembly of the displaceable workpiece into a finished product.”); *id.* col. 7, ll. 29-31 (“A first pick step is performed by engaging the displaceable workpiece 12 with a conventional pickup tool . . . , such as a die collet.”); *id.* col. 7, ll. 38-41 (“Engagement of the pickup tool with the displaceable workpiece 12 during motion of the pickup tool is maintained by conventional means such as vacuum suction or the like.”)). Just as using a generic computer to conduct intermediated settlement was not enough to provide an inventive concept in *Alice*, using generic tools in a placement method is not enough here.

The claim limitations that narrow the ’327 Patent to a particular environment are also insufficient to supply the necessary inventive concept. In *Bilski*, the Supreme Court found the patent at issue to cover ineligible subject matter because it sought “to patent both the concept of hedging risk and the application of that concept to energy markets.” 561 U.S. at 609. The Court found that even as applied to energy markets the patent was invalid, because the “prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* at 610. Here, too, the mere application of a two-step placement to a specific environment—die placement and/or chip manufacture—cannot provide the necessary inventive concept. *See also Flook*, 437 U.S. at 585-90 (holding that use of an algorithm to monitor catalytic conversion during oil-refining was unpatentable despite limitation of patent to petrochemical and oil-refining applications).

Just as conventional tools and specific environments cannot provide the necessary inventive concept, neither can those two elements put together. In *In re TLI*, the Federal Circuit found that the patent at issue was directed to “the abstract idea of classifying and storing digital

images in an organized manner.” 823 F.3d at 613. The fact that the claims limited the application of this idea to certain components was insufficient to provide the necessary inventive concept, because “[i]t is well-settled that mere recitation of concrete, tangible components is insufficient to confer patent eligibility to an abstract idea” when used in the “performance of well-understood, routine, conventional activities previously known to the industry.” *Id.* Limiting claims to conventional tools *within* a particular environment does not provide a sufficient inventive concept to confer patentability on *Alice* step two.

But that limitation is exactly what the dependent claims of the ‘327 Patent cover. Even reading dependent claim limitations together to construct a hypothetical narrowest claim, there is nothing more inventive in the ‘327 Patent than limiting the application of an abstract idea to the environment of chip assembly using conventional tools. If that were enough to provide the necessary inventive concept, then abstract ideas could be freely patented as applied to a specific industry—an outcome that has been squarely rejected by the Supreme Court. *See Bilski*, 561 U.S. at 612 (holding claims invalid under § 101 that “attempt[ed] to patent the use of the abstract idea of hedging risk in the energy market and then instruct the use of well-known random analysis techniques to help establish some of the inputs into the equation”).

Palomar nonetheless contends that the ‘327 Patent supplies a sufficiently inventive concept for either of two reasons. First, it argues that the patent created a new method for accomplishing a specific task, carrying no risk of preempting an entire fundamental concept. (ECF 473 at 20–21; ECF 525 at 22–24). In support of that argument, it contends that the field cannot be preempted because the PTAB did not conclude that the Isaacs reference anticipated Claims 1–47. (ECF 473 at 18).

However, finding an alternative method of placing microelectronics components with

precision is not sufficient to demonstrate patent eligibility. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (“While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.”). The preemption concern here is not simply that the patent may preempt the field of placing dies onto circuits; it is that the patent appears to preempt a huge variety of activities in any number of fields. While the dependent claims somewhat mitigate the overbreadth problem, “merely limiting claims to a particular technological environment does not render the claims any less abstract.” *Reese v. Sprint Nextel Corp.*, 774 Fed. Appx. 656, 660 (Fed. Cir. 2019) (citing *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1259 (Fed. Cir. 2016)).¹³

Second, Palomar contends that the claims of the ’327 Patent satisfy the machine-or-transformation test. (ECF 473 at 19–20). “While the Supreme Court has held that the machine-or-transformation test is not the sole test governing § 101 analyses, that test can provide a ‘useful clue’ in the second step of the *Alice* framework.” *Ultramercial*, 772 F.3d at 716 (internal citations omitted). Under that test, a claimed process may be patent eligible if “(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” *Id.* (citing *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008)).

The machine-or-transformation test does not save the patent. To meet the “machine” prong of the test, “the subject patent must disclose the use of an apparatus *specific to* the claimed invention.” *Intellectual Ventures I LLC v. Erie Indem. Co.*, 711 F. App'x 1012, 1019 (Fed. Cir. 2017) (citing *Ultramercial*, 772 F.3d at 716) (emphasis added). But purely generic and conventional tools cannot satisfy that test. For example, in *Ultramercial*, the court found that the

¹³ Even that argument only applies to claims 17 and 18, which limit the first and second workpieces to dies and circuit bodies, respectively.

claims of the patent at issue were “not tied to any particular *novel* machine or apparatus, only a general purpose computer. . . . And adding a computer to otherwise conventional steps does not make an invention patent-eligible.” 722 F.3d at 716–17 (emphasis added). Furthermore, it stands to reason that the machine-or-transformation test cannot be satisfied merely by the recitation of generic tools. If it could, a skilled drafter could always avoid the limitations of *Alice* merely by adding basic language identifying generic execution tools necessary to carry out the abstract idea.

Again, the independent claims of the ‘327 Patent are not linked to any machine, even on a generic level. But the limitations of the dependent claims of the patent also cannot satisfy the “machine” prong of the machine-or-transformation test. The dependent claims only include limitations of conventional and generic tools. Take, for example, the “pickup tool” identified in dependent claims 5 through 10. The patent’s specification identifies the tool as purely conventional. (‘327 Patent, col. 7, ll. 29–31). No other tools within dependent claims rectify that problem—each limitation is identified as conventional in the art by the specification. (*See, e.g., id.* col 5, ll. 24–28 (“A circuit body is broadly defined herein as any structure to which a die is conventionally attached”); *id.* col. 5, ll. 34–36 (“[T]he carrier is any conventional support structure for a displaceable workpiece prior to assembly of the displaceable workpiece into a finished product.”)). In sum, even by the patent’s own terms, there is nothing specific or inventive about the equipment described. And, in any event, “[i]t is well-settled that mere recitation of concrete, tangible components is insufficient to confer patent eligibility to an abstract idea” when used in the “performance of well-understood, routine, conventional activities previously known to the industry.” *TLI*, 823 F.3d at 613 (internal quotations omitted).

The “transformation” prong of the test is likewise not satisfied. “A claimed process is

patent-eligible if it transforms an article into a different state or thing. This transformation must be central to the purpose of the claimed process.” *In re Bilski*, 545 F.3d 943, 962 (Fed. Cir. 2008).¹⁴ To be sure, dependent claims 14, 15, and 16 include limitations requiring attachment of the workpieces. (‘327 Patent col. 14 ll. 11–23). Assuming that one or more of these claims was executed on a die and circuit body, what started as a die *and* a circuit body has been “transformed” into a circuit body with a die attached.¹⁵ But if generic attachment—of the sort that occurs in virtually all manufacturing, assembly, and construction processes—met the bar for “transformation,” the machine-or-transformation test would provide almost no limit on patentability. For example, if the idea of movement plus attachment (that is, the everyday, familiar physical act of moving something from A to B and attaching it there) were patented, would it not also pass the machine-or-transformation test under Palomar’s theory? The necessary “transformation” surely requires something more.

In summary, the ’327 Patent involves a patent-ineligible abstract concept—the closer an object is to a target, the easier it is to place the object accurately—and the claims do not include a sufficiently inventive concept to survive invalidation. Accordingly, MRSI has satisfied its burden of proving by clear and convincing evidence that the ’327 Patent claims subject matter that is not patentable and is therefore invalid. Summary judgment will therefore be granted in favor of MRSI, and against Palomar.

¹⁴ Although the Supreme Court held in *Bilski v. Kappos*, 561 U.S. 593 (2010) that the machine-or-transformation test was not the sole test for determining patentable subject matter, the court did not articulate a different version of the test as applied by the Federal Circuit in *Bilski*, 545 F.3d 943 (Fed. Cir. 2008). Thus, pre-*Bilski* caselaw likely remains relevant insofar as it applies the test itself.

¹⁵ In fact, this is too generous a reading of the dependent claims. Generic attachment steps are only incorporated into dependent claims 14, 15, and 16. But the workpieces are identified only in dependent claims 17 and 18, which depend from claim 1. In other words, any claims specifying an “attachment” only specify the attachment of a “first workpiece” to a “second workpiece.” (‘327 Patent col. 13–14). In any event, additional specificity as to the workpieces does not affect the result.

IV. Conclusion

For the foregoing reasons, U.S. Patent No. 6,776,327 claims subject matter that is not patentable under 35 U.S.C. § 101 and is therefore invalid. The motion of defendant MRSI Systems, LLC for summary judgment on the issue of patentability under 35 U.S.C. § 101 is GRANTED, and the motion of plaintiff Palomar Technologies, Inc., for summary judgment on the same issue is DENIED. The remaining motions of Palomar Technologies, Inc., for summary judgment are DENIED as moot.

Dated: May 28, 2020

/s/ F. Dennis Saylor IV
F. Dennis Saylor IV
Chief Judge, United States District Court