

**UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

HENROB LIMITED,

Plaintiff/Counter-Defendant,

v.

Case No. 05-CV-73214-DT

BÖLLHOFF SYSTEMTECHNICK GMBH & CO.
and BÖLLHOFF RIVNUT, INC.,
BAYERISCHE MOTOREN WERKE AG, BMW NA,
ROLLS-ROYCE MOTOR CARS LTD.,
and ROLLS-ROYCE NA,

Defendants/Counter-Plaintiffs.

**OPINION AND ORDER DENYING DEFENDANTS' MOTION FOR SUMMARY
JUDGMENT OF INVALIDITY OF THE '305 PATENT**

This litigation involves two patents, U.S. Patent No. 5,752,305 (the “305 Patent” and U.S. Patent No. 5,779,127 (the “127 Patent”), which deal with the self-piercing riveting technology invented by Plaintiff/Counter-Defendant, Henrob Limited (“Henrob”). On October 25, 2006, the court issued an order pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996), construing the two Patents. Now before the court is a “Motion for Summary Judgment of Invalidity of the ‘305 Patent,” filed by Defendants/Counter-Plaintiffs, Böllhoff Systemtechnik GmbH & Co., and Böllhoff Rivnut, Inc., (collectively “Böllhoff”) and Defendants Bayerische Motoren Werke AG, BMW NA, Rolls-Royce Motor Cars Ltd., and Rolls-Royce NA (collectively “BMW”). The court conducted a hearing on the matter on December 19, 2008. For the reasons set forth below, the court will deny the motion.

I. BACKGROUND¹

In this litigation, Henrob asserts that the riveting method (the “Riveting Method”) used by Defendants with Böllhof’s riveting machine (the “Böllhoff Rivetor”) infringe, literally and under the doctrine of equivalents, certain claims of the ‘305 Patent. (Undisputed Fact # 1.) The ‘305 Patent relates to “a method of and apparatus for riveting of the kind in which a self-piercing rivet is inserted into sheet material without full penetration, such that the deformed end of the rivet remains encapsulated by an upset annulus of the sheet material.” (Undisputed Fact # 6, citing the ‘305 Patent.) One of the stated purposes of the invention claimed and disclosed in the ‘305 Patent is to produce riveted joints with better visual appearance. (*Id.*) The court construed this patent in its October 25, 2006 opinion and order.

Henrob filed the patent application which eventually became the ‘305 Patent on March 1, 1996. (Undisputed Fact # 3.) The ‘305 Patent, which is entitled “Self-Piercing Riveting Method and Apparatus,” was issued on March 1, 1996, but claims a priority date of December 19, 1992, because of an earlier filed patent in the United Kingdom. (Undisputed Fact ## 3-5.)

The majority of the instant motion focuses on the effect of a particular article on the validity of the ‘305 Patent. In October 1992, the article titled “Pierce-&-Roll Riveting – The Alternative to Spot-Welding,” was published in the October/November 1992 edition of the publicly available magazine entitled Aluminium Industry (the “AI Article”).

¹Unless otherwise noted, the following facts are undisputed. The majority of relevant facts were proffered by Defendants, accepted by Plaintiff, and are therefore cited as “Undisputed Fact # ___.”

(Undisputed Fact # 23.) Because the AI Article was published before the December 19, 1992 earliest priority date of the '305 patent, the AI Article is prior art to the '305 patent under 35 U.S.C. § 102(a). (Undisputed Fact # 24.) The AI Article discloses a self-pierce riveting machine for, and a method of self-pierce riveting, "together two or more sheets of material without need for a pre-pierced hole, but can do it in such a way that the rivet never breaks through the lower sheet." (Undisputed Fact # 25, citing (AI Article at 24, Defs.' Ex. 10.) The AI Article shows a die that has a recess and is located beneath the second sheet in alignment with the rivet punch. (Undisputed Fact # 26.) The self-pierce rivet shown in the AI Article has a tapered end and "is designed to pierce the upper sheet and to begin rolling immediately [after] it enters the lower sheet." (Undisputed Fact # 27, citing AI Article, Defs.' Ex. 10, p. 24.)

On May 30, 2003, the Patent Office ordered a reexamination of the claims that issued in the '305 Patent, based on prior art that had not been considered by the Patent Office during the original prosecution of the '305 Patent, because such prior art, and particularly the AI Article, raised "a substantial new question of patentability affecting claims 1-15" of the '305 Patent. (Undisputed Fact # 37, quoting Reexamination Prosecution History, Appdx. Ex. 11, pp. HEN000570-HEN000573.) In a first office action dated December 19, 2003, the Patent Office rejected method claims 1-3 and 8 and machine claims 9 and 10 as being unpatentable over the AI Article under 35 U.S.C. § 102(a). (Undisputed Fact # 38.) The Patent Office determined that the AI Article disclosed each limitation found in those rejected claims. (*Id.*) In response to the December 19, 2003 office action, on February 19, 2004, Henrob filed Response A,

wherein Henrob conceded that the AI Article discloses a self-pierce riveter and riveting method with a pre-clamping structure but argued:

The distinction between the clamping sheets [sic] using a force applied by the nose as described above and clamping sheets to ensure that there can be no inward flow of material during the riveting operation is established in claim 1 by reference to a clamping force “being sufficiently substantial to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheets.” Claim 9 similarly recites “being sufficiently substantial to prevent the material of the first sheet from being drawn laterally inwards towards the rivet as the rivet is being driven into the sheets.” (‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000621).

There is currently no reference to the effects achieved by the magnitude of clamping forces contemplated by the present invention, i.e., preventing sheet material from being drawn laterally inwards. (‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000624).

(Undisputed Fact # 39.) With Response A, Henrob also submitted Exhibit B which, according to Henrob, shows “general differences in nature between hydraulic pre-clamping forces and spring clamp forces.” (Henrob Fact # 40.) Defendants contend that Exhibit B is a force versus time graph showing “that the prior art Spring Pre-Clamping riveter disclosed in the AI Article initially has a low clamping force before the rivet insertion operation, and then remains constant during at least a major part of the riveting operation.” (Defs.’ Fact # 40.) The dispute between the parties, therefore, is whether the graph is a specific graphic depiction of the exact riveter in the AI Article, or a general illustration of pre-clamping and spring clamp forces. The parties also dispute whether the graph shows a constant force, or an increasing force, throughout the riveting operation.

Also in Response A, Henrob stated that “[i]n traditional riveting it has been well known to ‘clamp’ the two (or more) sheets of material together so as to ensure that the

sheets are held steady in the appropriate position to enable the riveting operation to take place.” (Undisputed Fact # 41, citing ‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000619).

With regard to machine claim 9, Henrob argued that, in addition to the fact that the AI Article does not disclose the Material Flow Limitation as claimed in claim 9, the AI Article also does not disclose a hydraulically actuated clamping structure, whereas the clamping means claimed in claim 9 is a hydraulically actuated clamping structure. (Undisputed Fact # 42.) In an office action dated May 11, 2004, the Patent Office confirmed machine claim 9, with the understanding that, based on Henrob’s representations, a hydraulically actuated clamping structure was required to produce a clamping force to prevent inward, lateral material flow. (Undisputed Fact # 43.)

In the May 11, 2004 office action, however, the Patent Office again rejected method claims 1 and 2 over the AI Article, noting that:

[I]t is inherent that the spring pre-clamping disclosed by the [AI Article] provide[s] some degree of force sufficiently substantial to prevent the sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheets. (‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000648).

Appendix B [submitted with Response A] also shows that clamping force, for either hydraulic or spring pre-clamping, reaches a constant maximum during the actual rivet driving operation, which is a major part of the riveting operation. (‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000649).

(Undisputed Fact # 44.)²

²Although Henrob’s response brief does not explicitly accept this fact, the court deems it undisputed as it is a verbatim recitation of the prosecution history. Indeed, Henrob’s response to this proffered fact appears to be a typographical error, perhaps an erroneous pasted response, as it does not directly respond to Defendants’ proffered fact, and instead reproduces its response to Fact Number 40.

On August 4, 2004, Henrob filed Amendment B, where it added new claims 16 and 17, which claimed, in part, that the clamping force “prevents substantial distortion” and “substantially maintains the flatness” of the sheet material, respectively, and amended claim 1 to read, in part (additions underlined, deletions in brackets):

clamping the sheets together before the rivet is driven in to the first sheet with a clamping force applied immediately adjacent the rivet, the clamping force being [sufficiently substantial] sufficient to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheets, said clamping force merely required to hold said sheets against each in other in a generally non-moving relation. (‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000658, HEN000661-HEN000662).

(Undisputed Fact # 45.) Also in Amendment B, Henrob represented to the Patent Office:

The reason for increasing the clamping force above that needed to hold the sheets in place is to prevent drawing sheet material laterally inwards as explained in Response A.

The AI Article and Sheet Metal Article do not disclose or suggest a clamping force larger than a clamping force merely required to hold the sheets together and generally prevent movement of the sheets relative to each other. (‘305 Reexamination Prosecution History, Appdx. Ex. 11, pp. HEN000664-HEN000665).

(Undisputed Fact # 46.)

After another rejection of the claims by the Patent Office, Henrob resubmitted another new claim 16 in Amendment C, and made the following statement to the Patent Office: “The reason for increasing the clamping force above that needed to hold the sheets in place is to prevent drawing sheet material laterally inwards as explained in Response A.” (Undisputed Fact # 47, citing ‘305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000689.)

After Henrob amended claim 1, the Patent Office decided that the claims were allowable. (Fact # 48.)³ In the Reasons for Patentability/Confirmation, the Patent Office stated:

As discussed in the Declaration of Roger Stanton Doo dated February 23, 2004, the clamping force of the prior art device apparently only prevents the sheets from slipping with respect to each other. By providing a greater clamping force than the prior art, the instant invention is capable of providing a clamping force sufficient to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheet. There is no teaching or [suggestion] in the prior art of record to provide a clamping force sufficient to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheet. ('305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000700).

(Undisputed Fact # 49.)

As part of Response A, Henrob submitted a declaration to the Patent Office by Roger Staton Doo, an employee and Director of Henrob, in which Mr. Doo represented to the Patent Office the differences between the prior art preclamping, self-pierce riveter and method disclosed in the AI Article, and the claimed riveter and method (the “Doo Declaration”). (Undisputed Fact # 50.) In his Declaration, Mr. Doo stated:

I have read and understand the content of the following referenced cited by the United States Patent Office: “Aluminium Industry, Pierce & Roll riveting – the alternative to spot-welding” (Vol. 11, No. 5, pages 24-26) by Kenneth Edwards, published 19th November 1992. (Doo Declaration, Appdx. Ex. 12, ¶ 3);

I was responsible for organizing tests to compare the results of riveting processes using our pre-clamping invention with a spring clamping technique that was prevalent in the riveting of aluminum sheet material at the time the above cited reference [AI Article] was published. I believe that the equipment described in the [AI Article] used conventional spring clamping as there is no suggestion in the text that hydraulic clamping was

³The parties present differing interpretations of this fact, but ultimately do not dispute the fact as written by the court.

used and the figures only show a single hydraulic cylinder and an associated pair of hoses for advancing and retracting the rivet insertion actuator and punch. (Doo Declaration, Appdx. Ex. 12, ¶ 4);

The photographs of Exhibit 1 attached to this declaration show the results of a first test conducted. The photograph annotated “hydraulic pre-clamping” shows the results of insertion of a rivet using the preclamping invention method and apparatus described in our aforementioned patent application. The photograph annotated “spring pre-clamping” shows a riveted joint that was made with a hydraulically operated actuator of the kind described in the cited reference [AI Article] referred to in paragraph 3 with the clamping force being applied with a spring within the tool. Both joints are made from the same sheet material. The material coupons for the upper sheets were cut from the same sheet of aluminum material – 1.2 mm thick NG5754, as were the lower sheets – 2.5 mm thick NG5754. (Doo Declaration, Appdx. Ex. 12, ¶ 5).

(Undisputed Fact # 51.) For the tests of the spring pre-clamping riveter described in the Doo Declaration, Mr. Doo concluded, “It can be seen that there is lateral movement of the rolling marks in the region around rivet insertion. This movement has been measured at 0.3 mm. Relative to the size of the joint this is significant as it is 11.3 % of the rivet shank radius.” (Undisputed Fact # 52.) For the tests of the claimed hydraulic pre-clamping riveter described in the Doo Declaration, Mr. Doo concluded:

The use of different rivet and die combinations for different material combinations is well known and does not override the effect that the pre-clamping process will always produce a joint with insignificant lateral draw compared to that on the same joint made without the pre-clamping process. The clamping force applied was 6.8 kN. The same red line is displayed as for the other photograph [for the joint made with the spring pre-clamping riveter]. It can be seen that there is no significant discernable movement of the sheet material. (Doo Declaration, Appdx. Ex. 12, ¶ 7 and Exhibit 1).

(Undisputed Fact # 53.) The photographs submitted by Mr. Doo to represent the amount of material flow that occurs with the claimed Henrob pre-clamping riveter and

the prior art spring pre-clamping riveter only showed the top of the riveted joints.

(Undisputed Fact # 54.)

During his deposition, Nicholas Clatworthy made statements indicating that the tested Henrob pre-clamping riveter and the rivet and die tested with that riveter for the Doo Declaration was a Henrob riveter using Henrob's best available technology in 2003, not in 1992. (Fact # 55.)⁴

Defendants contend that the test data submitted to the Patent Office in the Doo Declaration established 0.30 mm of Material Flow as the benchmark for the prior art riveter and riveting method taught in the AI Article. (Defendants' Fact # 56, relying on '305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000700; Doo Declaration, Appdx. Ex. 12, ¶ 6 and Exhibit 1 attached thereto). Defendants further contend that

[T]he PTO accepted and specifically relied upon and used the representation set forth in the Doo Declaration that the prior art resulted in 0.30 mm of Material Flow, as the reference against which the '305 patent's claimed limitation "clamping force being sufficient to prevent sheet material from being drawn laterally inwards towards the rivet as the rivet is driven into the sheets" is compared. ('305 Reexamination Prosecution History, Appdx. Ex. 11, p. HEN000700).

(Defs.' Fact # 56.) Henrob disputes that the Doo Declaration established, or the Patent Office accepted, a .30 mm of Material Flow as a "benchmark" for the prior art riveter and riveting method taught in the AI Article. (Henrob's Fact # 56.) Rather, Henrob contends that "the point of the spring clamp coupon submitted with the Doo Declaration was to

⁴The parties present differing interpretations of this fact, but ultimately do not dispute the fact as written by the court.

show the examiner the difference between the spring clamp and pre-clamp process.”
(Henrob Fact # 56.)

Defendants’ current motion argues that the AI Article discloses, either expressly or inherently, each of the elements claimed in claims 1-3, 8, and 16 of the ‘305 Patent. Defendants thus argue that these claims are invalid because of anticipation under 35 U.S.C. § 102(a). Defendants also argue that claims 1-4, 8-10, 14, and 16 of the ‘305 Patent are invalid because of obviousness under 35 U.S.C. § 103(a) inasmuch as the AI Article, in combination with one or more other prior art references, discloses each of the elements in these claims.

II. STANDARD

Under Federal Rule of Civil Procedure 56, summary judgment is proper when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). “In deciding a motion for summary judgment, the court must view the evidence in the light most favorable to the non-moving party, drawing all reasonable inferences in that party’s favor.” *Sagan v. United States*, 342 F.3d 493, 497 (6th Cir. 2003). “Where the moving party has carried its burden of showing that the pleadings, depositions, answers to interrogatories, admissions and affidavits in the record, construed favorably to the non-moving party, do not raise a genuine issue of material fact for trial, entry of summary judgment is appropriate.” *Gutierrez v. Lynch*, 826 F.2d 1534, 1536 (6th Cir. 1987) (citing *Celotex Corp. v. Catrett*, 477 U.S. 317 (1986)).

The court does not weigh the evidence to determine the truth of the matter, but rather, to determine if the evidence produced creates a genuine issue for trial. *Sagan*,

342 F.3d at 497 (quoting *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 249 (1986)).

The moving party must first show the absence of a genuine issue of material fact. *Plant v. Morton Int'l, Inc.*, 212 F.3d 929, 934 (6th Cir. 2000) (citing *Celotex*, 477 U.S. at 323).

The burden then shifts to the nonmoving party, who “must do more than simply show that there is some metaphysical doubt as to the material facts.” *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586 (1986). They must put forth enough evidence to show that there exists a genuine issue to be decided at trial. *Plant*, 212 F.3d at 934 (citing *Anderson*, 477 U.S. at 256).

The existence of a factual dispute alone does not, however, defeat a properly supported motion for summary judgment – the disputed factual issue must be material. See *Anderson*, 477 U.S. at 252 (citation omitted) (“The judge’s inquiry, therefore, unavoidably asks whether reasonable jurors could find by a preponderance of the evidence that the plaintiff is entitled to a verdict – ‘whether there is [evidence] upon which a jury can properly proceed to find a verdict for the party producing it, upon whom the *onus* of proof is imposed.’”). A fact is “material” for purposes of summary judgment when proof of that fact would establish or refute an essential element of the claim or a defense advanced by either party. *Kendall v. Hoover Co.*, 751 F.2d 171, 174 (6th Cir. 1984) (citation omitted).

A patent enjoys a presumption of validity pursuant to 35 U.S.C. § 282. “Consequently, ‘a moving party seeking to invalidate a patent at summary judgment must submit such clear and convincing evidence of invalidity so that no reasonable jury could find otherwise.’” *Chrimar Sys., Inc. v. Cisco Sys., Inc.*, 318 F. Supp. 2d 476, 491 (quoting *Eli Lilly & Co. v. Barr Labs.*, 251 F.3d 955, 962 (Fed. Cir. 2001)); see also

Beckson Marine, Inc. v. NFM, Inc., 292 F.3d 718, 725 (Fed. Cir. 2002) (holding that a party seeking to establish particular claims as invalid must overcome the presumption of validity in 35 U.S.C. § 282 by clear and convincing evidence).

III. DISCUSSION

A. Anticipation

Defendants first argue that each of the elements claimed in claims 1-3, 8, and 16 of the '305 Patent are invalid because the AI Article discloses, either expressly or inherently, each of the limitations found in these claims. Defendants thus contend that these claims are invalid because of anticipation under 35 U.S.C. § 102(a).

By statute, a patented invention must be “new.” This requirement is tested in accordance with 35 U.S.C. § 102(a).

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent

35 U.S.C. § 102(a).

“A patent is invalid for anticipation when the same device or method, having all of the elements contained in the claim limitations, is described in a single prior art reference.” *Crown Operations Int'l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375 (Fed. Cir. 2002).⁵ “[A]nticipation is a question of fact, [that] may be decided on summary judgment if the record reveals no genuine dispute of material fact.” *Telemac Cellular Corp. v.*

⁵ “Typically testimony concerning anticipation must be testimony from one skilled in the art and must identify each claim element, and explain in detail how each claim element is disclosed in the prior art reference.” *Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1315 (Fed. Cir. 2002).

Topp Telecom, Inc., 247 F.3d 1316, 1327 (Fed. Cir. 2001) (citing *General Elec. Co. v. Nintendo Co., Ltd.*, 179 F.3d 1350, 1353 (Fed. Cir. 1999)); *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001) (“Anticipation under 35 U.S.C. § 102 means lack of novelty, and is a question of fact.”).

To anticipate, every limitation of the claimed invention must be found in a single prior art reference, either expressly or inherently. *Telemac Cellular Corp.*, 247 F.3d at 1327 (“A prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently, to anticipate.”); *Beckson Marine, Inc.*, 292 F.3d at 725; *Brown*, 265 F.3d at 1351; *Advanced Display Sys. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) (“[I]nvalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation”).

Each “prior art reference must be ‘considered together with the knowledge of one of ordinary skill in the pertinent art.’” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citation omitted). “As [the Federal Circuit] has stated, ‘the dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference’s] teaching that every claim element was disclosed in that single reference.” *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368-69 (Fed. Cir. 2003) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991) (alteration in original)).

There is no dispute that the AI Article is prior art to the ‘305 Patent or that the AI Article generally discloses a self-pierce riveting machine and a method of self-pierce

riveting at least two metal sheets together. (Undisputed Facts ## 24 & 25.) The AI Article shows a die that has a recess and is located beneath the second sheet in alignment with the rivet punch. (*Id.* at # 26.) Further, the rivet shown in the AI Article has a tapered end and “is designed to pierce the upper sheet and to begin rolling [after] it enters the lower sheet.” (*Id.* at # 27, citing the AI Article.) The parties dispute, however, whether the AI Article discloses a riveting method or machine that (1) applies a clamping force to the sheets of material “during” the rivet insertion process, as is required by the ‘305 Patent or (2) applies a clamping force in any specified magnitude.

Both parties agree that the heart of their dispute is whether the AI Article discloses what they refer to as the “Material Flow limitation.” The Material Flow limitation requires “clamping force being sufficient to prevent sheet material from being drawn laterally inwards toward the rivet as the rivet is being drawn into the sheets.” (Henrob’s Br. at 6; Defs.’ Fact # 79.) Henrob splits this “Material Flow limitation” into two limitations: (1) the “Clamping Force limitation,” addressing the degree of force required and (2) the “Duration limitation,” addressing the length of time the force is applied. Defendants contend that the AI Article inherently discloses both of these limitations, but Henrob argues that Defendants have not shown, by clear and convincing evidence, that the AI Article inherently discloses either of the limitations.

1. Clamping Force Limitation

Henrob first argues that the AI Article does not disclose the Clamping Force limitation, that is, a “clamping force being sufficient to prevent sheet material from being drawn laterally inwards toward the rivet.” According to Defendants, however, the AI Article inherently discloses this limitation as a matter of law. “Whether a claim [element

or] limitation is inherent in a prior art reference is . . . a question of fact.” *Telemac Cellular Corp.*, 247 F.3d at 1328. To be inherently disclosed, the missing claim limitation or characteristic “must be necessarily present [in the prior art reference such that] a person of ordinary skill in the art would recognize its presence.” *Crown Operations Int’l, Ltd.*, 289 F.3d at 1377; see also *MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (prior art must *necessarily function* in accordance with or include the claimed limitations). As the Federal Circuit has explained,

Under the doctrine of inherency, if an element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate a subsequent claim if the missing element “*is necessarily present in the thing described in the reference*, and that it would be so recognized by persons of ordinary skill.” *Cont’l Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). “Inherent anticipation requires that the missing descriptive material is ‘*necessarily present*,’ not merely probably or possibly present, in the prior art.” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002) (quoting *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999)).

Rosco, Inc. v. Mirror Lite Co., 304 F.3d 1373, 1380 (Fed. Cir. 2002) (emphasis added).

Inherence “may not be established by probabilities or possibilities.” *MEHL/Biophile Int’l Corp.*, 192 F.3d at 1365. “The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Crown Operations, Ltd.*, 289 F.3d at 1377.

In order to support their anticipation argument, Defendants rely upon the tests of their expert, Andrew MacDonald.⁶ Henrob contends that genuine issues of

⁶ Defendants argue that the Doo Declaration, and the tests described therein, are inherently flawed such that a jury could not reasonably rely on them. Instead, they argue that the only arguably appropriate tests are those done by their expert, Mr. MacDonald in April 2008 and the test done by the Henrob employees in May 2008. (Defs.’ Mot. at 26.) Both parties primarily discuss these tests in their arguments, and the court will do the same. Because the court concludes a genuine issue of fact exists even under these tests, the court need not discuss the Doo tests, relied upon by

MacDonald's credibility preclude summary judgment.⁷ Henrob argues that the jury could disregard MacDonald's testimony because MacDonald is a paid expert and also an owner of a competitor of Henrob. "Summary judgment should not be denied simply because the opposing party asserts that the movants witnesses are not to be believed. However, summary judgment is not appropriate where the opposing party offers specific facts that call into question the credibility of the movant[']s witnesses." *TypeRight Keyboard Corp. v. Microsoft Corp.*, 374 F.3d 1151, 1158 (Fed. Cir. 2004). As Defendants point out, the company that Mr. MacDonald works for is a competitor of both Henrob and Böllhoff. (Defs.' Reply at 19.) These alleged biases are not, in and of themselves, a sufficient reason to deny a summary judgment motion. Nonetheless, viewing the evidence in a light most favorable to Henrob, where there is competing expert testimony, the alleged bias of Defendants' expert could provide further reasons for a reasonable jury to accept Henrob's expert's testimony and reject Defendants'.

Henrob also challenges that the substance of MacDonald's tests, conducted solely for purposes of this litigation, are flawed. Henrob submits that MacDonald "did not test the riveter disclosed in the AI Article, namely the Pierce & Roll machine that Ariel Industries, Inc. ("Ariel") may have supplied to customers in Europe." (Henrob

Henrob, in great detail. The court notes, however, that Defendants' arguments regarding the Doo tests are legitimate bases for cross-examination, but do not support a reason to completely strike the tests, especially in light of the fact that the Patent Office considered these tests during the reexamination process.

⁷ Henrob argues that MacDonald's tests cannot be relied upon because the lab reports are unsworn and therefore inadmissible. (Henrob's Resp. at 7-8.) The court rejects this argument, inasmuch as MacDonald attested to this information in his deposition and, additionally, submitted a sworn affidavit affirming the opinions with Defendants' reply brief. Any technical defect with the reports has been cured.

Resp. at 8-9.) Instead, “MacDonald tested a Böllhoff riveter called a dual action riveter. . . . Defendants submitted no evidence that the tested Böllhoff dual action riveter operates exactly like the riveter disclosed in the AI Article or exhibits the properties inherent to the riveter disclosed in the AI Article.” (*Id.* at 9.) Henrob also complains that

Defendants likewise submitted no evidence that the tested Böllhoff riveter is prior art and Mr. MacDonald admitted that he did not know whether this riveter is prior art or was even available in Europe at the time of the AI Article’s publication. . . . As a result of the complete lack of evidence of a direct connection between the machine tested by Mr. MacDonald and the riveter disclosed in the AI Article, a jury reasonably could find that Mr. MacDonald’s tests do not supply clear and convincing evidence that any particular properties of the riveter disclosed in AI Article necessarily exist.

(*Id.* at 10.) Henrob generally argues that there are issues of material facts concerning the machine, rivet, and dies that MacDonald used for his tests. The court finds Henrob’s argument a bit contradictory, inasmuch as Henrob also contends that the AI Article “is silent regarding specific materials, rivets, and dies to use with the disclosed riveter.” (*Id.*) Henrob states that “[a]lthough the AI Article depicts a silhouette of a rivet and die, it does not identify any rivets or dies with particularity.” (*Id.*) Nonetheless, the silence in the AI Article could be a reason why the parties’ experts do not necessarily agree on the correct materials to use. Any ambiguity, at the summary judgment stage, must be resolved, or viewed, in favor of Henrob’s interpretation.

Henrob also argues that there are issues of fact regarding whether the riveting parameters MacDonald selected were appropriate. Henrob contends that there are genuine issues as to whether he set the rivets deeply enough into the material to be joined and whether his measurements are accurate. Relying on an affidavit of Russell Trinick (Henrob’s Ex. 2), Henrob submits that “[c]ross-sections of the Böllhoff tests

demonstrate that the joints created were set incorrectly (i.e., not deeply enough), which resulted in a reduction of lateral flow that should have been identified on the MacDonald scribed line coupons.” (Henrob’s Fact # 104, 2nd Trinick Decl. ¶ 31.) Additionally, according to Mr. Trinick, “MacDonald’s measurements reflect less inward lateral flow than actually occurred and used a faulty method to measure rivet head height in the joints.” (Henrob’s Fact # 105, 2nd Trinick Decl. ¶ 12-14, 17-19, 28.) “As a result, genuine issues of material fact exist regarding the quality of Mr. MacDonald’s tests and measurements and, ultimately whether the joints accurately reflect the inward lateral flow of sheet material.” (Henrob’s Resp. at 11-12.)

Trinick also conducted tests using the same rivet, die and material combinations as MacDonald but applied different levels of force. Trinick applied a clamping force of 271 N of force, as compared to MacDonald’s 180 N of force. Additionally, Trinick increased the clamping force to 6.0 kN. When he applied 6.0 kN of force, he achieved joints with 0.000 mm of inward lateral flow, and when he applied 271 N of force, he achieved joints with an average of 0.059 mm and 0.056 mm of inward lateral flow. (See Henrob’s Facts ## 106-107.) Henrob contends that these latter measurements constitute a significant degree of lateral material flow.

Moreover, Henrob points out that MacDonald did not compare his tests, with 180 N of force, to joints made in the same testing session with a higher degree of force. Instead, MacDonald compared his joints, made with 180 N of force, to joints made by Doo in his Declaration submitted to the Patent Office. Henrob contends that a jury could reject MacDonald’s comparison’s as improper.

Finally, Henrob argues that Defendants incorrectly rely on 0.30 mm of material flow as a “benchmark” of prior art material flow. The court agrees. It is true that, in his declaration submitted to the Patent Office, Doo stated that his tests, using prior art, revealed 0.30 mm of material flow. It is also true that the Patent Office likely relied upon that measure in deciding that the claims in the ‘305 Patent were valid. Nonetheless, this does not mean that 0.30 mm is somehow converted into a “benchmark” for all future tests. Rather, as Henrob suggests, 0.30 mm is simply an example of the amount of flow a prior art riveter would produce. Defendants cannot seriously suggest that 0.30 mm is the exact amount of flow *all* prior art riveters would create. Moreover, in determining the validity of a patent, the relevant question is whether the prior art inherently anticipates a particular element, that is, whether the missing claim limitation is “necessarily present [in the prior art reference such that] a person of ordinary skill in the art would recognize its presence.” *Crown Operations Int’l, Ltd.*, 289 F.3d at 1377. Thus, the question here is not whether, as Defendants suggest, an 80% improvement over the prior art is sufficient to show anticipation, but whether the prior art necessarily discloses a riveting method with a “clamping force being of such magnitude to significantly restrict the inward, lateral flow of sheet material that is subject to the clamping force.” (See Claim Construction Order.) In making this determination, Defendants must establish, as a matter of law, that tests recreating the method disclosed in the AI Article show a significant restriction of material flow. Defendants must also establish that this degree of lateral flow is necessarily present in the AI Article. Thus, there is not really any

necessary comparison: not between, as Defendants suggest, 0.056 mm⁸ and 0.30 mm, and not between, as Henrob suggests, 0.056 and 0.00 (found by using a hydraulic pre-clamping riveter with a 6kN degree of force). These comparisons are relevant, and illustrative, but not dispositive. Instead, the first question, in this summary judgment proceeding, is whether a reasonable jury could rely upon the results of 0.056 or 0.059 mm of flow, and if so, whether that amount of flow *as a matter of law* constitutes a “significant restriction” of inward lateral flow. As to the first question, there is no *genuine* issue that a reasonable jury could accept these results. Further, Henrob submits evidence, in the form of scribed line and LSMR tests,⁹ that this degree of flow is not a significant restriction. The court finds that a reasonable jury could agree with Henrob.

Moreover, even if the court were to conclude that Defendants have identified a riveting method which seems to fit within the parameters of the AI Article and also fits within the parameters of the ‘305 Patent, they have not shown that this riveting method is necessarily present in the prior art. “The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Crown Operations, Ltd.*, 289 F.3d at 1377. *Probably* fitting within the parameters of the method and device described in the

⁸ Defendants’ expert tests resulted in 0.04 mm of inward lateral flow, but on summary judgment the court must view the facts in a light most favorable to Henrob. Thus, at a minimum, the court must accept Henrob’s results.

⁹ For the reasons discussed in the court’s order denying Defendants’ motions to strike, the court will not exclude evidence related to the LSMR tests. Contrary to Defendants’ assertions, Henrob is not attempting to expand the scope of the ‘305 Patent or otherwise show that vertical distortion is prevented by the ‘305 Patent. Rather, Henrob’s expert claims that the LSMR test provides a vertical depiction of the resulting distortion which occurs from lateral material flow. The focus, therefore, is not on the vertical distortion, but on the amount of lateral material flow. The court understands that Defendants will attempt to discredit this theory, but viewing the evidence in a light most favorable to Henrob, the court finds that a reasonable jury could rely upon this evidence.

AI Article is not the same as *necessarily being present* in the AI Article. In other words, even if 0.056 mm or 0.059 mm constitute a “significant restriction” of lateral flow, as a matter of law, Defendants have not shown that the AI Article necessarily discloses the particular method employed to achieve these numbers. Defendants have not shown that the only conclusion a reasonable jury could reach, by clear and convincing evidence sufficient to rebut the presumption of validity, is that the AI Article necessarily, as opposed to probably or possibly, discloses the particular method or device in the ‘305 Patent. *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192 (Fed. Cir. 2003) (“A claim limitation is inherent in the prior art if it is necessarily present in the prior art, not merely probably or possibly present.”).

2. Duration Limitation¹⁰

Inasmuch as the court has found genuine issues of fact preclude summary judgment on the Clamping Force Limitation, the court need not discuss the remaining arguments related to anticipation. See *Telemac Cellular Corp.*, 247 F.3d at 1327 (“A prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently, to anticipate.”). However, the court also finds that Defendants have not shown as a matter of law that the AI Article inherently discloses the “Duration Limitation,” which requires the clamping force to be applied “from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material.” (See Claim Construction Order.) Henrob points out that the AI Article contains only one

¹⁰ The Duration Limitation is present in independent Claims 1 and 16 and dependent Claims 2, 3, and 8.

passage which mentions the application of any force and that the Article is silent with respect to the timing of that force. (Henrob's Resp. at 16.) With regard to force, the AI Article states, "At the start of each riveting cycle the nose mechanism of the applicator is moved down to apply clamping force to the workpiece." (AI Article at 25, Defs.' Ex. 10.) Although the article indicates when the nose mechanism is moved down in order to apply a clamping force, it does not specifically state when that force is applied, or for how long. Thus, in order to meet their burden, Defendants must show that the AI Article necessarily includes, such that a person of ordinary skill in the art would recognize its presence, a clamping force which is applied "from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material." (See Claim Construction Order); see *Crown Operations Int'l, Ltd.*, 289 F.3d at 1377; see also *MEHL/Biophile Int'l Corp.*, 192 F.3d at 1365.

Defendants primarily rely on the graph submitted by Henrob to the Patent Office during reexamination to demonstrate that the AI Article inherently discloses this limitation. Defendants contend that the graph is subject only to one interpretation, namely, that the force applied by the prior art riveting method necessarily meets the Duration Limitation in the '305 Patent. Conversely, Henrob argues that the graph shows an "initial low spring clamping force before the rivet insertion operation, and then a higher setting force that remains constant during the riveting operation." (Henrob's Resp. at 17.) While the graph may support Defendants' interpretation, the court cannot say that it is susceptible to Defendants' interpretation *only*. More importantly, Defendants have not shown as a matter of law that the AI Article necessarily discloses

the Duration Limitation. It is not enough for Defendants to merely argue that Henrob has not set forth competing evidence; Defendants must produce sufficient evidence by which a reasonable jury would be compelled to find by clear and convincing evidence that the AI Article necessarily discloses the Duration Limitation. Defendants have not done so.

Moreover, even if the court were to accept Defendants' argument that the graph is subject to only one interpretation, Henrob has proffered additional evidence, in the form of Dr. Hu's affidavit, which claims that the AI Article does not inherently disclose the Duration Limitation. Specifically, Dr. Hu opines that "the AI Article does not disclose a clamping force applied from the time when the self-piercing rivet penetrates the upper surface of the first sheet of material until the self-piercing rivet is disposed in its fully driven position in the second sheet of material." (Hu Decl. at ¶ 8, Pl.'s Ex. 1.) Henrob also argues that the Duration Limitation is not disclosed because, instead, the AI Article discloses a riveting device or method that would "exhibit a continuous linear increase when the punch is being driven downward, and could not be adjusted or set to deliver a low initial pressure for the purpose of spreading an adhesive evenly over the mating surfaces as it is described in the '305 parent." (Henrob Fact # 32, citing Hu Decl. at ¶ 12, Pl.'s Ex. 1.)

While the court acknowledges that Dr. Hu's generalized conclusions do not constitute an overwhelming amount of evidence, they are more than a scintilla and, given Defendants' high burden, they are enough to survive summary judgment.¹¹

¹¹ The court is inclined to find that Defendants did not meet their initial burden on summary judgment to show that they can establish by clear and convincing evidence

Accordingly, the court finds that Defendants have not shown they are entitled to summary judgment on anticipation grounds because they have failed to show, as a matter of law, that the AI Article anticipates the Material Flow Limitation, including the Clamping Force and Duration Limitation. In making this determination, the court is cognizant that Defendants bear a heavier burden to establish invalidity because the Patent Office has previously considered the AI Article in upholding the validity of the '305 Patent. "Where, as here, the PTO previously considered the prior art reference, [Defendants] bear[] an even heavier burden to prove invalidity." *Metabolite Lab., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1368 (Fed. Cir. 2004) (citing *Hewlett-Packard v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1467 (Fed. Cir.1990) ("This burden is especially difficult when the prior art was before the PTO examiner during prosecution of the application." (citation omitted)). Although Defendants argue to the contrary (Defs.' Mot. Br. at 31-33), the Federal Circuit has made clear that the attacker must overcome a degree of deference which is due to the Patent Office's validity determination:

When no prior art other than that which was considered by the PTO examiner is relied on by the attacker, he has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job, which includes one or more examiners who are assumed to have some expertise in interpreting the

that this element is inherently disclosed in the AI Article. The graph alone would not be enough to meet this burden, and Defendants point to little else to meet their high standard. "A non-movant need not always provide affidavits or other evidence to defeat a summary judgment motion. If, for example, the movant bears the burden, and its motion fails to satisfy that burden, the non-movant is 'not required to come forward' with opposing evidence." *Zenith Electronics Corp. v. PDI Commc'n Sys., Inc.*, 522 F.3d 1348, 1363 (Fed. Cir. 2008) (citations omitted).

references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents.

PowerOasis, Inc. v. T-Mobile USA, Inc., 522 F.3d 1299, 1304 (Fed. Cir. 2008) (quoting

Am. Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1359 (Fed. Cir. 1984)).

Especially in light of this heightened burden, Defendants are not entitled to summary judgment on anticipation.

B. Obviousness

Defendants also claim the '305 Patent is invalid because of obviousness. In order to establish invalidity on obviousness grounds, Defendants must show that “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a).

Obviousness under 35 U.S.C. § 103(a) is ultimately a legal question, based on underlying factual determinations. See *Richardson-Vicks, Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed.Cir.1997). The factual determinations underpinning the legal conclusion of obviousness include 1) the scope and content of the prior art, 2) the level of ordinary skill in the art,¹² 3) the differences between the claimed invention and the prior art, and 4) evidence of secondary factors, also known as objective indicia of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

Eisai Co. Ltd. v. Dr. Reddy's Labs., Ltd., 533 F.3d 1353, 1356 (Fed. Cir. 2008); see also

Para-Ordnance Mfg., Inc. v. SGS Imps. Int'l., Inc., 73 F.3d 1085, 1088 (Fed. Cir. 1995)

(“The ultimate determination of obviousness is a question of law, which we review de

¹² The parties agree that “[a] person having ordinary skill in the art would be a person who has received an undergraduate degree in mechanical engineering or a technician apprenticeship or equivalent and three years of experience with fastening technology in industry.” (Undisputed Fact # 84.)

novo.”). “The scope and content of the prior art, differences between the prior art and the claimed invention, the level of ordinary skill in the art, and objective evidence of secondary considerations of patentability are fact determinations.” *Para-Ordnance Mfg.*, 73 F.3d at 1088. Additionally, “[w]hat the prior art teaches and whether it teaches toward or away from the claimed invention also is a determination of fact.” *Id.*

It is the movant’s burden to prove invalidity by clear and convincing evidence. *Id.* (citing *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 881 (Fed. Cir. 1998)). As “[t]he Supreme Court stated in *Anderson*, . . . ‘in ruling on a motion for summary judgment, the judge must view the evidence presented through the prism of the substantive evidentiary burden.’” *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) (quoting *Anderson*, 477 U.S. at 254).

“The grant of summary judgment of invalidity for obviousness must be done on a claim by claim basis.” *Knoll Pharm. Co., Inc. v. Teva Pharms. USA, Inc.*, 367 F.3d 1381, 1384 (Fed. Cir. 2004) (citing *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1371 (Fed.Cir. 2003)). “The accused infringer must prove by clear and convincing evidence that each claim that is challenged cannot reasonably be held to be non-obvious.” *Id.* (citing *Monarch Knitting Mach. Corp.*, 139 F.3d at 881). Clear and convincing evidence exists when the movant “place[s] in the mind of the ultimate fact finder an abiding conviction that the truth of its factual contentions are ‘highly probable.’” *Colorado v. New Mexico*, 467 U.S. 310, 316 (1994).

The Supreme Court has fairly recently clarified the law with respect to obviousness in *KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 1739

(2007). In *KSR*, the Supreme Court rejected a rigid application of the “teaching, suggestion, or motivation” (“TSM”) test. *KSR*, 127 S.Ct. at 1741. The Court explained: “The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.” *Id.* The Federal Circuit has since elaborated:

a rigid requirement of reliance on written prior art or patent references would, as the Supreme Court noted, unduly confine the use of the knowledge and creativity within the grasp of an ordinarily skilled artisan. [*KSR*, 127 S.Ct.] at 1742. As this court has explained, however, a flexible TSM test remains the primary guarantor against a non-statutory hindsight analysis such as occurred in this case.¹³ *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed.Cir. 2007) (“[A]s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention.”). The TSM test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence--teachings, suggestions (a tellingly broad term), or motivations (an equally broad term)--that arise before the time of invention as the statute requires. As *KSR* requires, those teachings, suggestions, or motivations need not always be written references but may be found within the knowledge and creativity of ordinarily skilled artisans.

Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc., 520 F.3d 1358, 1364-65 (Fed. Cir. 2008).

1. Independent Claims 1 and 16

Defendants first argue that Independent Claims 1 and 16 are invalid for obviousness. Defendants claim that “[i]n December 1992, when the Henrob Pre-clamping Riveter was invented: (a) self-pierce riveting to join sheets of material was nothing new; and (b) using a clamping force to clamp the sheets of material together

¹³ For this reason, the court rejects Defendants’ intimation that the TSM test is completely irrelevant after *KSR*.

before and during the riveting operation was nothing new.” (Defs.’ Br. at 37.)

Defendants also rely on the expert report of Mr. MacDonald to argue that in December 1992, “it was well known in the sheet metal working and joining art to join sheets of materials by methods, such as traditional riveting, clinching or punching, wherein the sheets of material were clamped together by utilizing a substantially high clamping force provided by a suitable clamping structure, such as a hydraulically actuated annular surface.” (*Id.*) Defendants cite French patent no. 2,350,901 (the “French ‘901 Patent”), U.S. Patent Nos. 3,529,502 (the “‘502 Patent”) and 3,747,194, and patent application publication no. WO 91/15316 (“WO ‘316 Application”) as examples.

Indeed it is undisputed that the French ‘901, the ‘502 Patent, and WO ‘316 Application each “disclose[] a hydraulically operated clamping structure capable of applying a substantial clamping force before and during the metal joining operation.” (Undisputed Fact # 87.) Defendants contend that the French ‘901 patent discloses that (1) the force applied by the pre-clamping device can be higher than the force applied by the rivet insertion punch, and (2) the clamping force is applied before and during the punching, stamping, or riveting operation. (Defs.’ Mot. Br. at 2.)

Defendants contend that it would have been obvious to a person of ordinary skill in the art to combine the technology in the French ‘901 Patent (describing hydraulic clamping systems with a high degree of force) with the technology in the AI Article (describing self-pierce riveting) to arrive at the invention claimed in the ‘305 Patent, Claims 1 and 16. See *KSR*, 127 S. Ct. at 1739 (“[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Henrob, however, has presented persuasive evidence to the contrary. First, Henrob points out that the Patent Office has already reviewed the French Patent '901 twice, and has found that "its teachings are redundant" to the art already before it. (Henrob Fact # 110.) More to the point, however, Henrob argues that "a person of ordinary skill in the art would not readily recognize and be able to combine the existing elements in the manner set forth in claims 1 and 16 . . . [and indeed] would not consider combining the technologies of the FR '901 Patent and AI Article, because the references actually teach against it.." (Henrob Resp. at 20.) Henrob explains that the technology behind the French '901 Patent addressed "an improved method of using a clamping structure to assist with punching *through* sheet material, which is fundamentally different from self-pierce riveting ("SPR") technology, where the punch never pierces through the workpiece being joined. (*Id.* at 21, emphasis added). Where the French '901 Patent refers to riveting, it is referring to a method of "pre-punching a hole for use in a riveting process, and using a clamp to hold down the sheets during extraction of the punch, and not for rivet insertion." (*Id.* at 21, Henrob Fact # 112.) The AI Article, on the other hand, discusses a "system which can not only rivet together two or more sheets of material without need for a pre-pierced hole, but can do it in such a way that the rivet never breaks through the lower sheet." (AI Article at 24, Defs.' Ex. 10.) According to Henrob, this language "specifically distinguishes itself from being combined with a reference utilizing a pre-punched hole in sheet metal."¹⁴ (Henrob's Resp. at 21.)

¹⁴For this reason, it is likely that the two prior art references even "teach away" from one another. See *Andersen Corp. v. Pella Corp.*, No. 2007-1536, 2008 WL 4927431, *5 (Fed. Cir. Nov. 19, 2008) ("[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." (quoting *KSR*, 127 S.Ct. at 1739-40)).

Henrob also explains how the purpose of the French '901 Patent is such that a person of ordinary skill in the art would not think to combine its hydraulic clamping system with the AI Article related to SPR technology:

Furthermore, the purpose of the clamping structure in the F[rench] '901 Patent, to extract the sheet material from the punch, is completely inapposite to SPR technology where the punch itself never pierces through any sheet material. By way of background, the F[rench] '901 Patent specifically addresses the potential flaws of prior art machines that used a common cylinder for both penetrating the workpiece and also for ensuring that the workpiece is retained during removal of the punching tool. [(Henrob Fact # 114.)] The improvement of the F[rench]'901 Patent, therefore, is towards the use of the clamping force for holding down the sheet metal from the punch during extraction of a punch, a process that is never used or necessary in self pierce riveting. [(Henrob Fact # 115.)] In this technology, a punch is used to puncture holes into sheet metal. [(Henrob Fact # 115)] Because there is no clearance between the punch and the hole when a punch is forced through the metal, the punch tends to stick to the sheet when it is eventually retracted as a result of the frictional forces between the punch and the metal, the physical contraction of the hole, and the traces of the sheet material wiped onto the punch or punched sheet metal surface. [(Henrob Fact # 115.)] The purpose of the clamping force in the F[rench] '901 Patent, therefore, is to facilitate the stripping of sheet metal from the punch so that the workpiece is retained in position and the punch strips cleanly from it during its extraction. [(Henrob Fact # 115.)] This purpose is not, however, required in or intended for self pierce riveting because in SPR, the punch does not pierce through the workpiece being joined. A person of ordinary skill in the art, accordingly, would see no reason to incorporate the clamping structure from the F[rench] '901 Patent into the riveter disclosed in the AI Article. [(Henrob Fact # 118.)] This is especially true because the explicit purpose of the clamping mechanism in the F[rench] '901 Patent (holding down the workpiece material during stripping) and the AI Article (to monitor the workpiece thickness and position) are also themselves entirely different.

(Henrob's Resp. at 21-22.)¹⁵

¹⁵ Although the court has cited Henrob's brief, the relevant language is supported by appropriate citations to the factual record.

The court is persuaded that Henrob has produced sufficient evidence that the purpose of the French '901 Patent and the purpose of the technology described in the AI Article were sufficiently distinct that a person of ordinary skill in the art would not think to combine them. The Supreme Court stated in *KSR*,

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida*¹⁶ and *Anderson's-Black Rock*¹⁷ are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR Intern. Co. v. Teleflex Inc., 127 S.Ct. at 1740. In this case, according to the evidence presented by Henrob, the combination of the AI Article and the French '901 Patent is “more than the predictable use of prior art elements according to their established functions.” *Id.* Instead, it crosses different types of fastening and technology which are also focused on solving different types of problems.

Additionally, Defendants have not clearly articulated a reason why a person of ordinary skill in the art would think to combine these two technologies. As the Supreme Court explained,

often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether

¹⁶ *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976).

¹⁷ *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969).

there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”).

KSR, 127 S.Ct. at 1740-41. While the court “need not seek out precise teachings directed to the specific subject matter of the challenged claim,” *id.* at 1741, Defendants must at least offer an “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness,” *id.* (citation omitted). Defendants have failed to do so. The court is persuaded by Henrob’s well-stated argument:

Because the invention of the F[rench] ‘901 Patent is for retaining a workpiece from the punch tool, and not to improve the quality of a joint, there is nothing in the disclosure F[rench] ‘901 Patent that would motivate or give any reason to a person of ordinary skill in the art to take the steps of modifying the fundamental structure the riveter disclosed in the AI Article by adding a second hydraulic cylinder that could operate a clamping nose, an additional hose or pair of hoses that could operate such a cylinder neither, and an alternative valve arrangement to redirect some hydraulic fluid from the first pair of hoses to a clamping nose cylinder.

(Henrob’s Resp. at 23.) Accordingly, the court concludes that Claims 1 and 16 are not invalid for obviousness due to a combination of the AI Article and the French ‘901 Patent.

Further, the court also rejects Defendants arguments related to the ‘502 Patent, the ‘194 Patent, and the WO ‘316 Application.¹⁸ There is no specified correlation between the ‘502 Patent’s clamping force, used—like the French ‘901 Patent—during

¹⁸ Defendants predominately rely on the French ‘901 Patent and provide almost no directed argument with respect to the other prior art references. The court will likewise devote little attention to them, as the obvious arguments based on them are even more tenuous than those based on the French ‘901 Patent, which the court has already rejected.

punch extraction and the disclosed '305 Patent's force during rivet insertion in order to prevent lateral material flow. Likewise, Defendants provide no "articulated reasoning with some rational underpinning" why a person with ordinary skill in the art would combine the '194 Patent's "Rivbolt" technology or the WO '316 Application's clinching technology with the AI Article. Further, the WO '316 Application expressly teaches away from rivet technology.¹⁹ (See the WO '316 Application at 1, Defs.' Ex. 21, stating that "[t]he present invention relates to fastening tools and in particular to a clinching apparatus for joining overlapping portions of sheet material *without the need for independent fastening elements such as rivets or nails.*" (emphasis added).)

2. Dependent Claims 2, 3 and 8

Claim 2 depends on Claim 1, and Claims 3 and 8 depend on Claims 1 or 2. Because the court has concluded that Claim 1 is not invalid for obviousness as a matter of law, then Defendants motion must also fail with respect to the dependent claims.

3. Independent Claim 9 and Dependent Claim 10

Independent Claim 9 discloses a "clamping means," which the court construed to mean "a hydraulically actuated annular clamping structure that is capable of providing a substantial clamping force and has a surface, on bottomside thereof, that contacts the first sheet of material." (Claim Construction Order.) Defendants argue first that the AI

¹⁹ The Federal Circuit has recently found evidence sufficient to overcome summary judgment in a similar situation, holding that the "teaching-away evidence, combined with the deference owed to the Patent Office's issuance of this patent after reviewing the same prior art references that form the basis of this obviousness challenge, raises a genuine issue of material fact as to whether an ordinarily skilled insect screen designer would have found the combination of the TWP mesh with the other prior art references obvious." *Andersen Corp.*, 2008 WL 4927431 at * 3.

Article inherently discloses a clamping structure that significantly restricts Material Flow. (Defs.' Mot. Br. at 43.) The court has already rejected this argument for the reasons set forth above, and thus their invalidity argument on this claim will necessarily fail.

Moreover, for the same reasons discussed with respect to Claims 1 and 16, Defendants have also failed to establish that a person of ordinary skill in the art would think to combine the AI Article with any of the hydraulically actuated clamping structures disclosed in the cited patents or application. Thus, Defendants argument with respect to Independent Claim 9 and Claim 10, which depends upon Claim 9, fails.

4. Dependent Claims 4 and 14

Claim 4 depends on Claims 1 and 2, and Claim 14 depends upon Claims 9, 10, or 11. Claim 4 includes all the limitations from Claim 1, which the court has found is not invalid as a matter of law, and Claim 14 includes all the limitations from Claim 9, which the court has also found not invalid as a matter of law. Accordingly, summary judgment will also be denied on Claims 4 and 14.

5. Secondary Considerations

Secondary considerations such as commercial success, long felt but unresolved need, the failure of others to invent, and unexpected results are essential components of the obviousness determination and must be considered by the court. See *In re Rouffet*, 149 F.3d at 1355; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 719 (Fed. Cir. 1991). Although these secondary considerations must be considered, they do not control the question of obviousness. *Newell Cos. v. Kenny Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988); see also *Richardson-Vicks Inc.*, 122 F.3d at 1483; *Ryko*, 950 F.2d at

719 n.26. Moreover, a district court may grant summary judgment based on a finding of obviousness even when resolving all secondary consideration evidence and justifiable inferences in favor of patentee if such secondary considerations are considered but fail to “carry sufficient weight to override a determination of obviousness based on primary considerations.” *Ryko*, 950 F.2d at 719.

“Commercial success is, of course, a strong factor favoring nonobviousness.”

Akzo N.V. v. ITC, 808 F.2d 1471, 1481 (Fed. Cir. 1986). The Federal Circuit has explained:

The significance of a new structure is often better measured in the marketplace than in the courtroom.

Thus when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light. Such objective indicia as commercial success, or filling an existing need, illuminate the technological and commercial environment of the inventor, and aid in understanding the state of the art at the time the invention was made.

Continental Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1273 (Fed. Cir. 1991).

“It is not necessary, however, that the patented invention be solely responsible for the commercial success, in order for this factor to be given weight appropriate to the evidence, along with other pertinent factors.” *Id.* For substantial weight to be accorded the secondary considerations proffered by Henrob,

“[a] nexus between the merits of the claimed invention and evidence of secondary considerations is required in order for the evidence to be given substantial weight in an obviousness decision.” *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 668 (Fed. Cir. 2000) (quoting *Simmons Fastener Corp. v. Ill. Tool Works, Inc.*, 739 F.2d 1573, 1575 (Fed. Cir. 1984)). Put another way, commercial success or other secondary considerations may presumptively be attributed to the patented invention only where “ ‘the marketed product embodies the claimed features, and is coextensive with

them.” *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311-12 (Fed. Cir. 2006) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000)).

Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1327-28 (Fed. Cir. 2008).

Defendants argue that Henrob has not shown the requisite nexus between the merits of the ‘305 Patent and its commercial success.²⁰ Defendants assert that Henrob’s evidence fails to show that there was ever any need in the automotive industry for the claimed invention. Instead, Defendants claim that “the only mention of preclamping in any of Henrob’s ‘secondary evidence’ states that preclamping is beneficial to avoid distortion or dishing in the area of the rivet . . . [y]et, . . . ‘distortion or dishing’ has nothing to do with the claimed invention of preventing Material Flow.” (Defs.’ Reply at 18.) Defendants also assert that “Henrob does not even market its riveters as having the feature of preventing Material Flow with a clamping force.” (*Id.*)

The court disagrees. Henrob has raised, at least, an issue of fact relating to the secondary evidence. According to Henrob, “[t]he infringing pre-clamping technique results in the manufacturing of superior joints, specifically when being used in aluminum bodied vehicles, and this marked improvement in joint quality is directly responsible for the success of Henrob, and Böllhoff through their use of the Accused Products.” (Henrob’s Resp. at 39.) Henrob provides facts to support its success in marketing and collaborating with Audi, BMW, Chrysler, Ford, General Motors, Mercedes, and Volvo. (Henrob’s Fact ## 138-140.) Henrob contends that its invention has made itself the

²⁰Defendants do not appear to dispute, at least at the summary judgment stage, the fact that the accused product has achieved commercial success. Rather, Defendants focus on whether Henrob can show that the success is attributable to the claimed invention.

“world leader in self-pierce fastening technology.” (Henrob Fact # 141.) Henrob further proffers that, “According to Audi, ‘it was clear that the riveting of aluminum would benefit from pre-clamping of the material prior to formation of the joint, not least because of the tendency of aluminum material to distort and ‘dish’ in the area of the rivet. This was certainly not acceptable in terms of appearance.” (Henrob Fact # 139, citing Doo & Singh, *Departure from Standard Technology and Body Engineering* (194) at HEN2868, Henrob’s Ex. 12.) The Federal Circuit has held:

When a patentee can demonstrate commercial success, usually shown by significant sales in a relevant market, and that the successful product is the invention disclosed and claimed in the patent, it is presumed that the commercial success is due to the patented invention. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392-93 (Fed. Cir.1988). If a patentee makes the requisite showing of nexus between commercial success and the patented invention, the burden shifts to the challenger to prove that the commercial success is instead due to other factors extraneous to the patented invention, such as advertising or superior workmanship.

J.T. Eaton & Co., Inc. v. Atlantic Paste & Glue Co., 106 F.3d 1563, 1571 (Fed. Cir. 1997). The court finds that Henrob has raised an issue of fact related to the nexus between commercial success and the claimed invention and that Defendants have failed to meet their burden on summary judgment to conclusively show that the commercial success is due to other factors. Accordingly, Henrob’s secondary factors provide further reason to deny Defendants’ motion for summary judgment on invalidity grounds.

V. CONCLUSION

For the reasons stated above, IT IS ORDERED that Defendants' motion for summary judgment of invalidity [Dkt. ## 209 & 210] is DENIED.

S/Robert H. Cleland
ROBERT H. CLELAND
UNITED STATES DISTRICT JUDGE

Dated: December 23, 2008

I hereby certify that a copy of the foregoing document was mailed to counsel of record on this date, December 23, 2008, by electronic and/or ordinary mail.

S/Lisa Wagner
Case Manager and Deputy Clerk
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