United States District Court,
S.D. Texas, Houston Division.

KOTHMANN & KOTHMANN, INC,
Plaintiff.
v.
TRINITY INDUSTRIES,
INC. Defendant.

Sept. 20, 2002.

Owner of patent for roadside guardrails sued competitor for infringement. On owner's motion for preliminary injunction, the District Court, Rosenthal, J., held that: (1) owner was unlikely to prevail on claim that truck-mounted attenuator was infringing, and (2) owner was unlikely to prevail on claim that allegedly infringing devices had requisite "cutting means."

Motion denied.

See also 2003 WL 22439847.

5,947,452, 6,022,003, 6,293,727. Cited.

Max Lalon Tribble, Jr, Susman Godfrey, Charles J Rogers, Winstead Sechrest & Minick, Houston, TX, Andrew Paul Mouton, Mouton Mouton et al, Big Spring, TX, for Kothmann Enterprises Inc.

Russell Clay Brown, Wellborn Houston Adkinson et al, Henderson, TX, Guy V Manning, Attorney at Law, Fort Worth, TX, Steven E Ross, Gardere Wynne et al, Dallas, TX, for Trinity Industries Inc.

FINDINGS OF FACT AND CONCLUSIONS OF LAW DENYING KKI'S APPLICATION FOR PRELIMINARY INJUNCTION

ROSENTHAL**, District Judge.**

In this patent infringement case, plaintiff, Kothmann & Kothmann, Inc. ("KKI"), seeks a preliminary injunction prohibiting defendant, Trinity Industries, Inc. ("Trinity"), from manufacturing or selling two highway safety devices. KKI alleges that these devices infringe its patent, United States Patent No. 6,022,003. (Docket Entry No. 3). Trinity asserts that KKI has not shown a reasonable likelihood of success on the merits because it has not made a clear showing that Trinity's accused devices infringe KKI's patent or that the patent is likely to withstand challenges to its validity and enforceability.

The parties conducted expedited discovery. This court held a four-day evidentiary hearing in April 2002. Based on the pleadings, the application, and responses, the parties' submissions, the evidence and

arguments, and the applicable law, this court enters the following findings of fact and conclusions of law.

FINDINGS OF FACT

I. Background

This case involves roadside safety devices designed to reduce injury and damage resulting from vehicles impacting guardrails, concrete barriers, and other objects on or alongside highways and roads. KKI sued Trinity, Inc., alleging that two products that Trinity manufactures and sells, the Mobile Protection System ("MPS 350"), a truck-mounted attenuator, FN1 and the Trinity Attenuating Crash Cushion ("TRACC"), FN2 infringe United States Patent No. 6,022,003. KKI has moved for a preliminary injunction to prohibit Trinity from making or selling the accused infringing devices.

FN1. The Transportation Research Board National Research Council National Cooperative Highway Research Program Report 350 ("NCHRP Report 350") defines a truck-mounted attenuator as "[a]n energy absorbing device attached to the rear of a truck or utility vehicle ... designed to provide a controlled stop of a vehicle impacting the rear of the truck." (Def.'s Prel. Inj. Hrg. Ex. 11, T00696).

FN2. The NCHRP Report 350 defines a crash cushion as "a device designed primarily to safely stop a vehicle within a relatively short distance." (Def.'s Prel. Inj. Hrg. Ex. 11, T00695).

A. KKI and the '003 Patent

KKI asserts that it owns all right, title, and interest in United States Patent No. 6,022,003, issued February 8, 2000, entitled "Guardrail Cutting Terminal" (the " '003 Patent"). KKI alleges infringement of claims 6, 8, and 12 of the '003 Patent. However, KKI limits its application for preliminary injunction to claim 6, which describes the following invention:

6. An energy-absorption system comprising:

a terminal including an impact head;

a cutting section; and

a cutable member having an axis;

said energy-absorption terminal including one of the cutting section and cutable member;

said one of said cutting section and cutable member being positioned in the energy-absorption terminal aligned with the impact head and the other of said cutting section and cutable member;

said energy-absorbing terminal including one of the cutable member and the cutting section aligned with each other wherein the cutable member, and cutting section are forced together when the impact head of the energy-absorbing terminal is impacted by a vehicle;

said cutting section including cutting means positioned to cut said cutable member as the cutable member

and cutting section are moved with respect to each other by the impact head.

(Docket Entry No. 33, Ex. A, col. 9, ln. 50).

KKI asserts that the '003 Patent "relates to the roadside safety field of technology involving the use of energy-absorption techniques in devices designed to safely stop vehicles within a relatively short distance when they leave the highway and impact roadside hazards such as the upstream ends of guardrails and concrete barriers, highway overpass support columns known as bridge piers, and even moving objects such as highway service vehicles in temporary work zones." (Docket Entry No. 3, p. 1). "The invention claimed in the '003 Patent covers a novel energy-absorption technique that uses a cutter to cut a cutable member, such as a guardrail or a metal plate, as the energy-absorption mechanism to bring an errant vehicle to a stop within a relatively short distance." (Id.).

The "Background of the Invention" section of the '003 Patent describes the invention:

This invention relates to guardrails intended to be positioned along a highway to reduce injury to the driver and passenger of vehicles that may accidentally tend to leave the highway.

In one class of guardrail system, each guardrail system includes an elongated barrier and at least one energy-absorbing terminal. The elongated barrier extends parallel to the roadway along the side of the roadway and ends in a terminal. The terminal cooperates with one or more components of the barrier to absorb energy when a vehicle hits the terminal itself.

The terminal is constructed to stop the vehicle without subjecting the occupant to excessive forces and to avoid impaling the passenger compartment of the vehicle or redirecting the vehicle in a dangerous direction or permitting the vehicle to continue in a dangerous direction at a dangerous speed when the vehicle hits the terminal itself. The barrier is designed to redirect the vehicle in a safer direction and impede its progress when the vehicle hits the barrier itself.

The terminals and barrier of the energy-absorbing guardrail are designed so that: (1) when the vehicle hits the barrieritself, the barrier is anchored by a cable or similar component with tensile strength to support the vehicle from moving excessively in a direction perpendicular to the roadway; and (2) when the vehicle hits the terminal, the cable or other support member is released to avoid pulling the barrier out of its alignment with the terminal which would prevent movement of the terminal and barrier together to absorb energy.

(Docket Entry No. 33, Ex. A, col. 1, ln. 1-30). Claim 6 describes an invention that absorbs the energy of impact, in part, by using cutters to cut into the guardrail or other material, slowing the impacting vehicle's movement.

The '003 Patent contains the following illustrations of preferred embodiments, which are helpful in describing the patented invention:

Figure 1

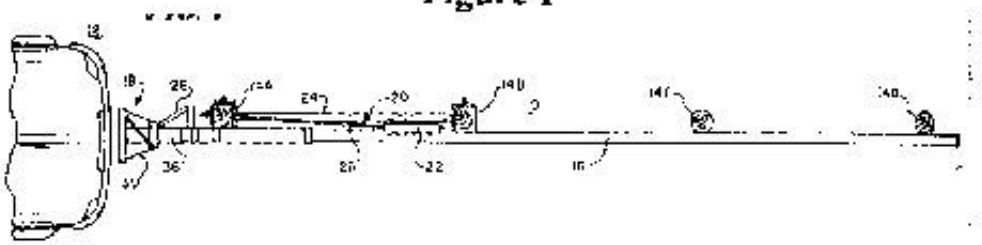


Figure 1 shows an embodiment of the '003 Patent from above, with a vehicle positioned to hit the terminal end. The guardrail is mounted to a series of posts, parallel to the roadway. FN3 The vehicle hits the impact head (30), pushing the cutting section (36) forward. Cutters are positioned inside the cutting section to cut along the guardrail (16) as the cutting section moves forward, absorbing the energy of impact and slowing the vehicle.

FN3. The posts and the post-breaking mechanism are not relevant to claim 6.

Figure 2

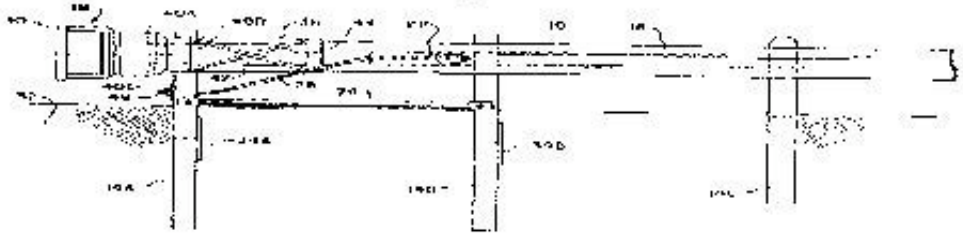


Figure 2 is a side view of the system shown in figure 1. In figure 2, the cutting section contains three cutters (40A-40C) positioned to cut the guardrail in three parallel lines as the cutting section moves along the guardrail. The cutters are parallel to the roadway and perpendicular to the guardrail.

Figure 5

Figure 5

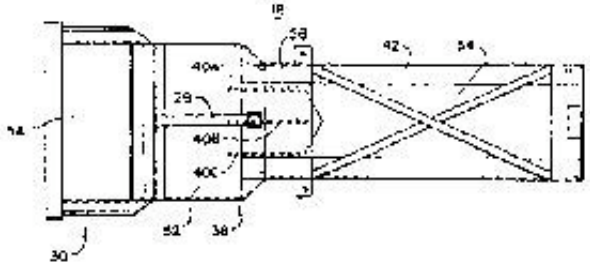
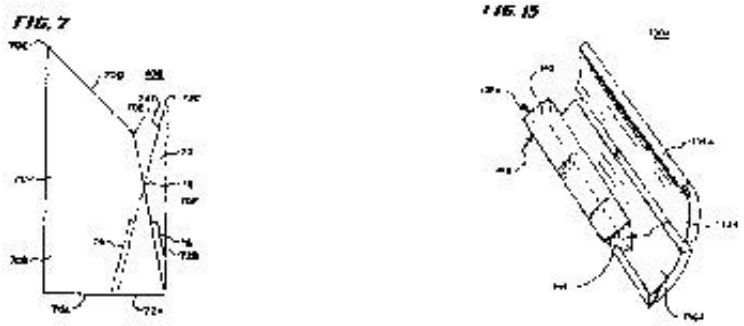


Figure 5 is a side view of the terminal assembly in figure 1, showing a hollow impact head (30) and a cutting section (36). The cutting section contains cutters (40A-40C) "welded within it to be horizontal when the terminal assembly 18 is mounted in place. The cutters may be three steel blades ... parallel to each other and positioned to be received by the W-beam [guardrail] in a V-shaped notch in the vertically mounted rail to cut the rail." (Docket Entry No. 33, Ex. A, col. 5, ln. 56-62). The cutters cut the guardrail to absorb the energy of impact, slowing the vehicle in a controlled fashion.

The '003 Patent describes two embodiments of the Claim 6 "cutting means." It depicts these embodiments as follows:



(Docket Entry No. 33, Ex. A). The parties refer to the embodiment shown in Figure 7 as the "shear type" or "scissors type" cutter or "angled steel plates." A more descriptive label the parties also use for Figure 7 is the "dual plate cutter." The dual plate cutter consists of two metal plates positioned in parallel planes and welded together to form an acute angle (76). Figure 15 shows the "single steel wedge" cutter, referred to as the "wedge shaped cutter."

Dr. Dean L. Sicking and Brian G. Pfeifer ("the applicants") filed an application for the '003 Patent with the United States Patent and Trademark Office ("PTO") on November 7, 1994. The applicants amended their application to add claim 17, which became claim 6 of the '003 Patent, on June 3, 1996. Although the applicants initially directed their invention to cutting a guardrail, they amended their claim to extend to cutting a "cutable member." The patent examiner issued a final rejection of claim 17 based on two grounds: (1) the claim was anticipated by U.S. Patent No. 4,655,434 (the "Bronstad Patent"); and (2) the claim was obvious in view of the Bronstad Reference in combination with U.S. Patent No. 5,078,366 (the "Sicking et al. patent"). (Def.'s Prel. Inj. Hrg. Ex. 2, tab 17).

The Bronstad Patent discloses an energy absorbing terminal consisting of a set of horizontally extending guardrails, with the guardrails positioned so that their ends overlap. (Def.'s Prel. Inj. Hrg. Ex. 4). Rounded "splice" bolts extend through the overlapping ends of adjacent guardrails. The bolts are aligned with a series of "spaced openings," or holes in the guardrails. When a vehicle impacts the nose of the terminal, the splice bolts "shred out the rail material between the spaced openings to absorb the kinetic energy of the impacting vehicle." (Id. at col. 1, ln. 67-col. 2, ln. 2).

The applicants appealed the patent examiner's rejection of claim 17. The applicants distinguished the Bronstad Patent on several grounds. They argued that the Bronstad Patent was "a clumsier and more expensive arrangement." They also asserted that the Bronstad bolts had blunt sides that "shredded" the guardrail rather than cutting or "shearing" it like the dual plate cutter or the wedge shaped cutter disclosed in the '003 Patent. (Def.'s Prel. Inj. Hrg. Ex. 2, tab 12, pp. 3-6, tab 16, pp. 7-8, tab 24, pp. 17-18).

The PTO Board of Patent Appeals reversed the patent examiner's final rejection of claim 17, explaining that:

We agree with the applicants that the claimed "cutting means" is not readable on the bolts [ ] of Bronstad. In that regard, the claimed "cutting means" must be given its broadest reasonable interpretation consistent with the specification, and must be read in light of the specification as it would be interpreted by one of ordinary skill in the art. ... In this case, the specification discloses (1) the cutters are wedge shaped (p. 7), and (2) the cutters slice the rail [ ] with a "shearing" action. In our view, an artisan would readily recognize the basic difference between cutting as disclosed in this application and the shredding disclosed by Bronstad. Accordingly, it is our determination that the claimed "cutting means" is not readable on the bolts [ ] of Bronstad since the bolts [ ] will shred out rail material, not "cut" the rail material.

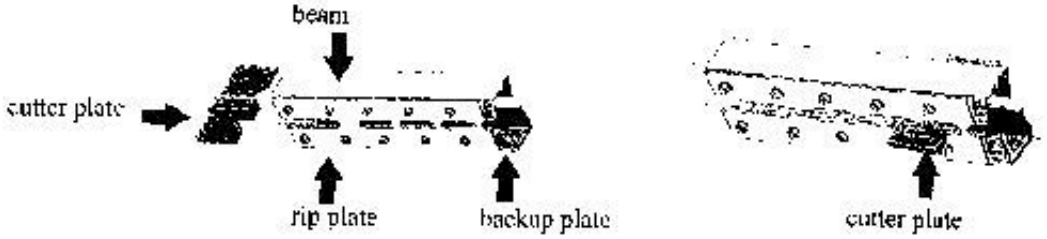
(Def.'s Prel. Inj. Hrg. Ex. 2, tab 26, p. 7).

On February 8, 2000, the PTO issued the '003 Patent to the University of Nebraska Board of Regents as the assignee of the individual inventors, Dean L. Sicking and Brian G. Pfeifer. (Docket Entry No. 33, Ex. A). Kado Kothmann, the sole officer, director, and shareholder of KKI, and the president and secretary of KEI, stated in his affidavit that the University of Nebraska Board of Regents assigned its interest in the '003 Patent to Interstate Steel Corporation on September 20, 2000, which, in turn, assigned its interest in the '003 Patent to KKI on October 30, 2000. (Docket Entry No. 3, Ex. B, para. 4). Kothmann, the president of KKI and Interstate Steel Corporation, executed a License Agreement on September 13, 2000, under which KKI granted a license under the '003 Patent to Interstate Steel Corporation. Kothmann signed the agreement for both corporations. (Docket Entry No. 33, Ex. P). Trinity asserts that Kothmann's statement in his declaration that KKI acquired its interest in the '003 Patent on October 30, 2000 is inconsistent with KKI having granted a license under that patent to Interstate Steel Corporation on September 13, 2000, and raises "questions regarding the accuracy of Kado Kothmann's declaration." (Docket Entry No. 59, p. 6).

On April 2, 2002, shortly before the hearing on KKI's motion for preliminary injunction, KKI merged into Kothmann Enterprises, Inc. ("KEI"). (Pl.'s Prel. Inj. Hrg. Ex. 56). The merger agreement provided that KEI "shall become the owner, without other transfer, of all the rights and property of [KKI] ...." (Pl.'s Prel. Inj. Hrg. Ex. 56). The agreement also provided that KEI would be the surviving corporation. It is undisputed that the merger occurred and that KKI no longer exists. Trinity asserts that as a result of the merger, KEI became the owner of all rights and property previously owned by KKI, including any patents. (Id.) During the preliminary injunction hearing, KKI did not dispute that KEI holds all the rights and interests KKI formerly held in the '003 Patent.

Trinity manufactures and sells a variety of products. One of Trinity's major divisions is its Highway Safety Products Division, which manufactures and sells over 10,000 products, including the MPS 350 and the TRACC. Trinity manufactures and sells the MPS 350 and the TRACC through a license agreement with the owner of United States Patent No. 5,947,452 (the "MPS 350 Patent") and United States Patent No. 6,293,727 (the "TRACC Patent"). The MPS 350 and TRACC Patents identify the inventor of the patented devices as James Albritton. (Docket Entry No. 33, Exs. F, H).

Trinity called Albritton as a witness to describe the TRACC and the MPS 350. Trinity presented a model of a "short" TRACC, a fourteen foot-long version of the regular TRACC. The TRACC is attached to the end of a guardrail, bridge pier, or other longitudinal barrier to absorb the impact of a vehicle that strikes the end of the barrier. The end of the TRACC that faces the road, the impact head, is covered with a plastic nose and reflectors. Upon impact, the impact head pushes a sled, located on the base of the structure, through the center of a set of longitudinally aligned side panels, running parallel to one another with a hollow space or channel between them. The sections of the side panels are designed so that the end of each section fits inside the next consecutive section. When the vehicle strikes the impact head, the sled moves and pushes the end of the first section, making the sections stack onto each other or "telescope" until the vehicle stops or reaches the last section. Cutting occurs simultaneously along the base of the structure, as shown below. (Pl.'s Prel. Inj. Hrg. Ex. 18).



Two square hollow beams run parallel to one another for the length of the system. The beams are located under, and in the direction of, the side panels. The inside wall of each beam has an one-inch gap, or channel, running longitudinally at approximately mid-height in the beam. This wall is called the "backup plate," or flange plate. Vertical metal plates called "rip plates" are bolted to the backup plates, over the one-inch channels. A cutter plate is mounted on the bottom of the sled, and extends across the two beams. The cutter plate is a one-half inch thick metal plate with rounded edges. The cutter plate is rectangular, with two v-shaped angles cut into the leading edge. The plate is positioned so that as the sled pushes the cutter plate along the beams, the outer leg of the "v" on each side of the cutter plate contacts the rip plate at an angle of forty-five degrees. As the cutter plate passes between the beams and through the rip plates, the contacting edges of the cutter plate cut into the rip plates, pushing or stretching the metal around the edges of the backup plates and into the hollow beams. (Docket Entry No. 47, p. 157-165).

Albritton began developing the TRACC during July to September of 1996 and completed the design in July of 1998. (Docket Entry No. 47, p. 153). The Federal Highway Administration approved the TRACC in November 1998. Trinity began selling the TRACC in December 1998 and has sold it continuously since then. FN4 Albritton testified that he was not aware of the '003 Patent when he designed the MPS 350 and the TRACC and that he was "completely finished with the TRACC by the time the '003 [Patent] issued." (Id. at p. 154).

FN4. Trinity witness Stephen Brown [Vice President of Operations of Trinity's Highway Safety Products Division] testified that Trinity made its first actual TRACC sale in February 1999.

The MPS 350 is a "truck mounted attenuator," an energy absorbing device attached to the rear of a truck or utility vehicle and designed to provide a controlled stop for a vehicle impacting the rear of the truck or utility vehicle. The MPS 350 is approximately fourteen feet long. It consists of a cutter plate, beams containing a channel, and rip plates. Like the TRACC, the MPS 350 has two modes of energy absorption, telescoping of the side panels and cutting of the rip plates. Like the TRACC's cutter plate, the MPS 350's cutter plate is positioned so that the contacting edges of the plate strike the rip plates at a forty-five degree angle. The rip plates are bolted to the backup plates. However, unlike the TRACC, in which the cutter plate is pushed along the beams, in the MPS 350, the cutter plate is mounted and the beams are pushed into it. The MPS 350 cutter plate is mounted by a bracket under the rear of the truck. Upon impact, the bracket rotates from a forty-five degree angle to the roadway to a ninety degree angle to the roadway, positioning the cutter plate parallel to the roadway and aligned with the beams and rip plates. This pivoting allows the system to be raised and lowered for transport. (Docket Entry No. 47, pp. 196-98).

The MPS 350



Albritton began developing the MPS 350 in April 1995. The Federal Highway Administration approved the MPS 350 at test level two in June 1996 and at test level three a few months later. FN5 (Docket Entry No. 47, pp. 149-150). Trinity began selling the MPS 350 in September 1996 and has sold it continuously since that time. In January 1997, Albritton gave a presentation on the MPS 350 at the Transportation Research Board meeting, where he met Dr. Sicking. (Id. at p. 152).

FN5. Test level two involves a forty-five mile per hour crash test requirement; the level three test is performed at sixty-two miles per hour. (Docket Entry No. 47, p. 150).

Albritton testified that the forty-five degree angle of the contacting edge of the cutter plate and its rounded shape are critical to both his inventions. The forty-five degree angle causes the rip plate material to fail in a predictable, out-of-plane direction, with the cutter plate pushing the rip plate material into the beam channels. The rounded shape enhances reusability and reliability. Sharp and square edges change shape and dull with use, while the rounded edge retains its round shape. (Docket Entry No. 47, p. 148-49).

Stephen Brown, vice president of operations in Trinity's Highway Safety Products Division, testified that Trinity sold approximately 270 MPS 350s and 600 TRACCs in 2001, and expects to sell 400 MPS 350s and 1,000 TRACCs in 2002. Trinity derives approximately $13 million from sales of the TRACC and MPS 350. Brown testified that Trinity holds approximately ten percent of the market share in the crash cushion market;

a competitor, Energy Absorption Systems, controls most of the crash cushion and truck mounted attenuator markets.

On August 8, 2001, KKI filed this lawsuit against Trinity, along with its application for preliminary injunction. KKI asserted that the MPS 350 and the TRACC "literally infringe" claim 6, and that "there is no need to resort to the doctrine of equivalents." (Docket Entry No. 3, pp. 14, 16). After the parties conducted discovery, this court held an evidentiary hearing lasting four days in April 2002. Trinity asserted that substantial questions of infringement, validity, and enforceability preclude preliminary injunction relief. Trinity also asserted that KKI will not suffer irreparable harm in the absence of a preliminary injunction. KKI responded that in addition to a strong showing of infringement, it has shown that unless Trinity is dislodged from the market, it will obtain an undeserved marketing advantage that KKI will not be able to overcome. Trinity and KKI presented evidence and arguments as to each of these issues in their briefs and during the hearing.

II. The Preliminary Injunction Standard

"The grant of a patent is the grant of the right to invoke the state's power in order to exclude others from utilizing the patentee's discovery without his consent." Smith Int'l, Inc. v. Hughes Tool Co., 718 F.2d 1573, 1577 (Fed.Cir.1983). "Protection of this right to exclude has been provided by Congress through 35 U.S.C. s. 283, *inter alia,* which provides that injunctions may be granted under the principles of equity to 'prevent the violation of any rights secured by patent, on such terms as the court deems reasonable.' " *Id.*

[1] [2] "The law of the Federal Circuit governs the grant or denial of a motion for a preliminary injunction in a patent case, pursuant to 35 U.S.C. s. 283." Reebok Int'l Ltd. v. J. Baker, Inc., 32 F.3d 1552 (Fed.Cir.1994); Data Race, Inc. v. Lucent Techns., 73 F.Supp.2d 698, 707 (W.D.Tex.1999). To obtain a preliminary injunction in a patent case under 35 U.S.C. s. 283, a plaintiff must demonstrate that: 1) it has a reasonable likelihood of success on the merits; 2) it will suffer irreparable harm absent an injunction; 3) the balance of hardships tips in its favor; and 4) the injunction is in the public interest. *See* Hybritech, Inc. v. Abbott Lab., 849 F.2d 1446 (Fed.Cir.1988). "[A] preliminary injunction is a drastic and extraordinary remedy that is not to be routinely granted." Intel Corp. v. ULSI Sys. Tech., Inc., 995 F.2d 1566, 1568 (Fed.Cir.1993), *cert. denied,* 510 U.S. 1092, 114 S.Ct. 923, 127 L.Ed.2d 216 (1994).

[3] "In order to demonstrate that it has a likelihood of success, [the patentee] must show that, in light of the presumptions and burdens that will inhere at trial on the merits, (1) it will likely prove [infringement] and (2) its infringement claim will likely withstand [the alleged infringer's] challenges to the validity and enforcement of the [ ] patent." Genentech, Inc. v. Novo Nordisk, A/S, 108 F.3d 1361, 1364 (Fed.Cir.1997). "In other words, if [the alleged infringer] raises a 'substantial question' concerning validity, enforceability, or infringement (*i.e.,* asserts a defense that [the patentee] cannot show 'lacks substantial merit') the preliminary injunction should not issue." *Id.* (quoting New England Braiding Co. v. A.W. Chesterton Co., 970 F.2d 878, 882-83 (Fed.Cir.1992)).

A. The Standard for Infringement Analysis

[4] "An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed." Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed.Cir.1995) (en banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). "The second step is comparing the properly construed claims to the device accused of infringing." *Id.;* Bell & Howell Document Mgmt. Products Co. v. Altek Sys., 132 F.3d 701, 705 (Fed.Cir.1997). The plaintiff must demonstrate a

likelihood of success in showing that the accused devices infringe each element of the claim. *See* Becton Dickinson & Co. v. C.R. Bard, Inc., 922 F.2d 792, 796 (Fed.Cir.1990) (infringement requires that "every limitation set forth in a claim must be found in an accused product or process exactly").

[7] "In determining the meaning of disputed claim terms, ... a construing court considers the descriptions in the rest of the patent specification, the prosecution history, and relevant extrinsic evidence." Vitalink Communications Corp., 55 F.3d at 619-20. "The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). "The general rule, of course, is that the claims of a patent are not limited to the preferred embodiment, unless by their own terms." Karlin Tech., Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 973 (Fed.Cir.1999).

[8] "The prosecution history gives insight into what the applicant originally claimed as the invention, and often what the applicant gave up in order to meet the Examiner's objections." Lemelson v. Gen. Mills, Inc., 968 F.2d 1202, 1206 (Fed.Cir.1992); *see also* Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed.Cir.1985) ("[T]he prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance."); J.T. Eaton & Co. v. Atlantic Paste & Glue Co., 106 F.3d 1563, 1565 (Fed.Cir.1997) ("The correct meaning of [the disputed] term is established by reading the prosecution history of the [ ] patent."). "Arguments made during the prosecution are given the same weight as claim amendments." *Elkay Mfg.,* 192 F.3d at 979. "[T]he standard for determining what subject matter was surrendered is objective and depends on what a competitor, reading the prosecution history, would reasonably conclude was given up by the applicant." *Insituform Techns.,* 99 F.3d at 1107-08 (citing Mark I Mktg. Corp. v. R.R. Donnelley & Sons, 66 F.3d 285, 291 (Fed.Cir.1995); Haynes Int'l, Inc. v. Jessop Steel Co., 8 F.3d 1573, 1578 (Fed.Cir.1993)). "Explicit arguments made during prosecution to overcome prior art can lead to narrow claim interpretations because '[t]he public has a right to rely on such definitive statements made during prosecution.' " Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1325 (Fed.Cir.2002) (quoting Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1347 (Fed.Cir.1998)).

[9] "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." Vitronics Corp., 90 F.3d at 1583 (citing, *e.g.,* Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed.Cir.1995); *see also* Bell & Howell, 132 F.3d at 705-06.). "The court may receive extrinsic evidence to educate itself about the invention and the relevant technology, but the court may not use extrinsic evidence to arrive at a claim construction that is clearly at odds with the construction mandated by the intrinsic evidence." Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 977 (Fed.Cir.1999) (citing Key Pharms. v. Hercon Lab. Corp., 161 F.3d 709, 716 (Fed.Cir.1998)).

"Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Markman v. Westview Instr., Inc., 52 F.3d 967, 980 (Fed.Cir.1995). "This evidence may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history." *Id.*

III. The Issues of Ownership and Standing

Trinity asserts that KKI has not made the requisite showing as to its ownership of the '003 Patent and its standing to sue for infringement. KKI has not submitted written instruments documenting the chain of title of the '003 Patent. Trinity points out that Kado Kothmann's declaration, stating that KKI acquired its rights in the '003 Patent on October 30, 2000, is inconsistent with a license agreement dated September 20, 2000, in which KKI purports to grant a license in the '003 Patent to Interstate Steel Corporation. Trinity also asserts that as a result of a recent merger, KEI owns any rights and interest in the '003 Patent previously held by KKI and KKI, the plaintiff, no longer exists.

[10] [11] [12] "A party may bring an action for patent infringement only if it is the 'patentee,' i.e., if it owns the patent, either by issuance or assignment." Speedplay, Inc. v. Bebop, Inc., 211 F.3d 1245, 1249-50 (Fed.Cir.2000)(citing 35 U.S.C. s.s. 100(d), 261, 281). FN6 "A party that has been granted all substantial rights under the patent is considered the owner regardless of how the parties characterize the transaction that conveyed those rights." *Id*. at 1250 (citing Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 874 (Fed.Cir.1991)). A court examines the agreement to determine whether "all substantial rights" in a patent were transferred or only a license. Mentor H/S, Inc. v. Med. Device Alliance, Inc., 240 F.3d 1016, 1017 (Fed.Cir.2001). The party asserting that it "obtained all substantial rights" in a patent from an assignment or transfer "must produce a written instrument documenting the transfer of proprietary rights in the patent." *Id*. (citing *Speedplay,* 211 F.3d at 1250 and 35 U.S.C. s. 261).FN7

FN6. 35 U.S.C. s. 281 provides "a patentee shall have remedy by civil action for infringement of his patent." Section 100(d) states that the term patentee includes "not only the patentee to whom the patent was issued but also the successors in title to the patentee."

FN7. 35 U.S.C. s. 261 provides in pertinent part:
Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States."

In *Mentor,* the Federal Circuit reversed a district court's judgment following a jury verdict in favor of the plaintiff, finding that the plaintiff lacked standing to sue for infringement. 240 F.3d at 1018. The court examined the documents the parties submitted, including license agreements, and held that the plaintiff was an exclusive licensee who did not have "all substantial rights" in the patent and thus lacked standing to sue. *Id*. The court noted that the plaintiff had failed to submit documents showing that the grantor of the license held title to the patent. *Id*. ("We also note that although the documents assert that [the grantor] is the owner of [the patent], and we have seen no evidence to the contrary, it does not appear that [the plaintiff/grantee] has made of record the documents transferring title to the patent from the inventors, in whose name the patent issued, to [the grantor], from whom [the plaintiff's] rights are derived.").

[13] KKI must make a reasonable showing that it holds title to the '003 Patent to establish a reasonable likelihood of success on the merits. *See* FilmTec Corp. v. Allied-Signal, Inc., 939 F.2d 1568, 1571 (Fed.Cir.1991) (vacating preliminary injunction because moving party failed to make reasonable showing that it held title to patent and thus had standing to sue for infringement). The Federal Circuit has stated that the issue of standing is jurisdictional. Mentor, 240 F.3d at 1018 (citing cases).

Trinity asserts that KKI has not made a sufficient showing of its standing to sue, pointing to the inconsistency between dates in Kothmann's declaration and the license agreement purporting to grant a license from KKI to Interstate Steel Corporation; KKI's failure to introduce written instruments documenting the transfers in the chain of title; and the fact that KKI no longer exists and transferred its rights and interests to KEI, which is not a party to this suit. Trinity has raised substantial questions as to whether KKI has held or holds title in the '003 Patent and as to KKI's standing to sue. To pursue its claims against Trinity, KKI must submit written instruments documenting its title in the '003 Patent and its standing to sue and joining or substituting necessary parties to this suit, if appropriate. Assuming that any alleged defects as to standing are readily curable, this court considers the merits of KKI's motion for preliminary injunction.

IV. Whether KKI Has Shown a Reasonable Likelihood of Success in Proving Infringement

KKI alleges that the MPS 350 and the TRACC infringe claim 6 of the '003 Patent. Trinity argues that KKI has not shown a reasonable likelihood that it will succeed in proving that these devices infringe claim 6.

The disputed terms in Claim 6 are set out in bold:

6. An energy-absorption system comprising:

a **terminal** including an impact head;

a **cutting section**; and

a cutable member having an axis;

said energy-absorption terminal including one of the cutting section and cutable member;

said one of said cutting section and cutable member being positioned in the energy-absorption terminal **aligned** with the impact head and the other of said cutting section and cutable member;

said energy-absorbing terminal including one of the cutable member and the cutting section aligned with each other wherein the cutable member, and cutting section are forced together when the impact head of the energy-absorbing terminal is impacted by a vehicle;

said cutting section including **cutting means** positioned to cut said cutable member as the cutable member and cutting section are moved with respect to each other by the impact head.

(Docket Entry No. 33, Ex. A, col. 9, ln. 50)(disputed terms in bold). FN8 Trinity asserts that the MPS 350 does not include a "terminal" and that the MPS 350 and the TRACC do not have the "alignment" or "cutting means" limitations.

FN8. The parties also dispute the meaning of the term "impact head." However, they do not dispute that each of the accused devices contain an impact head or which parts comprise the impact head.

A. Does the MPS 350 Have a "Terminal"?

[14] KKI defines "terminal," as follows:

The claimed "terminal" is a part that forms the end of an elongated barrier or other similar roadside hazard, and cooperates with the barrier or hazard to absorb energy when a vehicle hits the terminal itself. (*See, e.g.,* '003 Patent at col. 1, lines 7-12.) The claimed terminal must also include an impact head, and numerous other requirements as follows [in the further language of Claim 6].

(Def.'s Prel. Inj. Hrg. Ex. 68, Pl.'s Answers to Def.'s Interrogatories at 3). KKI relies, in part, on the following language from the specification in the '003 Patent:

In one class of guardrail system, each guardrail system includes an elongated barrier and at least one energy absorbing terminal. The elongated barrier extends parallel to the roadway along the side of the roadway and ends in a terminal. The terminal cooperates with one or more components of the barrier to absorb energy when a vehicle hits the terminal itself.

(Docket Entry No. 33, Ex. A, col. 1, ln. 7-13). KKI also relies on extrinsic evidence, including the testimony of the inventor, Dr. Dean L. Sicking. Dr. Sicking testified that a person of ordinary skill in the art would understand "terminal" as used in claim 6 to include a device used to treat the end of guardrails, bridge rails, and other "roadside hazards" such as a truck or a sign.

Trinity defines "terminal" as:

A device designed to treat the end of a longitudinal barrier .... [A] longitudinal barrier is a safety device whose primary functions are to prevent vehicular penetration and to safely redirect an errant vehicle from a roadside hazard or median hazard. The three types of longitudinal barriers are roadside barriers, median barriers, and bridge rails ...

(Def.'s Prel. Inj. Hrg. Ex. 70, Def.'s Answers to Pl.'s Interrogatories at 5). In support of its proposed interpretation, Trinity cites to extrinsic evidence, including the glossary of the National Cooperative Highway Research Program ("NCHRP") Report 350, (Def.'s Prel. Inj. Hrg. Ex. 11), and the testimony of Maurice Bronstad as to how a person of ordinary skill in the art would understand the claim term "terminal."

The crux of the parties' dispute is whether a "terminal" includes a device used to treat the end of a truck or work vehicle, such as the MPS 350. KKI asserts that the "MPS 350 truck mounted attenuator is a 'terminal' that forms the end of an elongated barrier or other similar roadside hazard, and cooperates with the barrier or hazard to absorb energy when a vehicle hits the terminal itself. The truck to which the MPS 350 is mounted functions as a 'longitudinal barrier' when the truck is used to protect workers on the roadside." (Docket Entry No. 58, p. 21). Trinity responds that the ordinary and accustomed meaning of the word "terminal" is "a device used to treat the end of a longitudinal barrier, such as a roadside barrier, median barrier, or a bridge rail," and does not include "other roadside hazards" such as a truck parked on the side of a road. (Docket Entry No. 59, p. 19).

The '003 Patent does not define "terminal." KKI relies, in part, on the "Background of the Invention" in the '003 Patent to support the argument that a terminal includes the end of a truck or work vehicle, as opposed to a fixed barrier such as a guardrail. The relevant portion of the "Background of the Invention" Section states as follows:

This invention relates to guardrails intended to be positioned along a highway to reduce injury to the driver and passenger of vehicles that may accidentally tend to leave the highway.

In one class of guardrail system, each guardrail system includes an elongated barrier and at least one energy-absorbing terminal. The elongated barrier extends parallel to the roadway along the side of the roadway and ends in a terminal. The terminal cooperates with one or more components of the barrier to absorb energy when a vehicle hits the terminal itself.

The terminal is constructed to stop the vehicle without subjecting the occupant to excessive forces and to avoid impaling the passenger compartment of the vehicle or redirecting the vehicle in a dangerous direction or permitting the vehicle to continue in a dangerous direction at a dangerous speed when the vehicle hits the terminal itself. The barrier is designed to redirect the vehicle in a safer direction and impede its progress when the vehicle hits the barrier itself.

The terminals and barrier of the energy-absorbing guardrail are designed so that: (1) when the vehicle hits the barrier itself, the barrier is anchored by a cable or similar component with tensile strength to support the vehicle from moving excessively in a direction perpendicular to the roadway; and (2) when the vehicle hits the terminal, the cable or other support member is released to avoid pulling the barrier out of its alignment with the terminal which would prevent movement of the terminal and barrier together to absorb energy.

(Docket Entry No. 33, Ex. A, col. 1, ln. 1-30).

The applicants used the word "terminal" to refer to the end of an "elongated barrier." The applicants described an elongated barrier that is "anchored" to prevent the vehicle from moving perpendicular to the roadway. The specifications and preferred embodiments refer to "guardrails." However, the prosecution history shows that while the applicants initially limited their claims to a device used to cut a "guardrail," in February 1997, the applicants broadened their claims by changing "guardrail" to "cutable member." (Docket Entry No. 47, p. 15, ln. 8-23, p. 17, ln. 5-10). One of the embodiments shows a "concrete structure" rather than a guardrail. (Docket Entry No. 33, Ex. A, Fig. 14). The word "terminal" clearly is not limited to the end of a guardrail.

Although the '003 Patent is not limited to a guardrail, the patent does not state or suggest that a "terminal" includes the end of a truck or a work vehicle on or alongside a road. The language in the specification describes a terminal at the end of an "elongated barrier" that is itself "anchored." The applicants did not use the word "terminal" to refer to the end of a moving or moveable truck or work vehicle. A truck, or work vehicle, even when parked, is not ordinarily described as an "elongated barrier," and is not "anchored" to the roadside. Unlike guardrails and other structures that are ordinarily described as "elongated barriers," the MPS 350 may be attached to, and used by, a slowly moving truck that is at the end of, or follows behind, a group of work vehicles. The intrinsic evidence, particularly the specification in the '003 Patent, does not support the contention that the word "terminal" applies to the end of a truck or work vehicle.

The parties presented conflicting expert testimony as to the meaning of the word "terminal." Dr. Sicking, the inventor of the '003 Patent, testified that a "terminal" is "a device used to mitigate the hazard associated with the end of the barrier or another roadside obstacle and cooperate with the barrier end or the other roadside obstacle to reduce the injury and fatalities associated with ran-of-road accidents." (Docket Entry No. 42, p. 66, ln. 5-9). When asked how he "arrived at that definition," Sicking responded: "That's the definition of a

terminal, as I understand it, in our industry as we-as we, basically, laid out in the '003 patent." (Id. at 135, ln. 6-8). When asked to describe "[w]hat kinds of things are roadside obstacles," Sicking answered: "Well, you have bridge piers. You have large mass signing. You have culverts. You have-in the case of work zones, you have trucks, equipment, trailers. There are just a wide variety of roadside obstacles, sign supports, luminary supports." (Id. at 132, ln. 9-14).

Trinity argues that Dr. Sicking's testimony is "improper extrinsic evidence." (Docket Entry No. 59, p. 19). In *Vitronics,* the Federal Circuit held that the trial court erred in relying on the inventor's testimony as to claim interpretation because the patent specification and other intrinsic evidence clearly defined the term. 90 F.3d at 1583-84. The court noted that the inventor's definition was inconsistent with the specification and would have rendered one of the preferred embodiments uncovered by the patent. *Id*. While a court may rely on expert testimony to resolve ambiguities remaining after considering intrinsic evidence, a court may not use extrinsic evidence to contradict or vary the claim language. *Id*. at 1584. "Nor may the inventor's subjective intent as to claim scope, when unexpressed in the patent documents, have any effect." *Id*.

In *Markman,* the Federal Circuit found that the meaning of the disputed term was "clear" from the patent and prosecution history. 52 F.3d at 983. The court held that the district court appropriately "exercised its discretion in finding unhelpful [the expert/inventor's] testimony that he meant [the term], or that one of ordinary skill in the art would understand [the term], to mean something to the contrary, and furthermore the district court rejected the testimony as conflicting with the meaningderived from the patent and prosecution history." *Id*.

Dr. Sicking testified that a "terminal" could include any "roadside obstacle," including a sign, a vehicle, or a sign support. KKI's evidence limited the definition of "terminal" to roadside hazards that are "similar" to elongated barriers in critical aspects, including the aspects of being a structure, fixed in place, designed to stop and redirect impacting vehicles. To the extent that Dr. Sicking testified as to his own broader definition, his testimony is irrelevant to the inquiry. To the extent that Dr. Sicking testified as to how he interpreted the '003 Patent to use the word "terminal," as opposed to how "terminal" is generally understood by a person of ordinary skill in the art, his testimony is irrelevant to the inquiry. *See* Vitronics, 90 F.3d at 1584 (inventor's subjective intent may not be used to alter scope of claim); Markman, 52 F.3d at 983 (inventor and expert's testimony as to how claim should be construed based on text of patent is "legal opinion" and inappropriate extrinsic evidence in construing a claim).

Maurice Bronstad, Trinity's expert witness, testified that Trinity's definition is the "usual" definition of the word "terminal," as understood by a person skilled in the art. Bronstad testified that while he "wouldn't say [he] necessarily disagree[d] with [KKI's definition]," KKI's definition is not the "normal" definition because of the "roadside hazard" language. Bronstad testified that a "roadside hazard" could include anything-a tree, an embankment, or a vehicle, to which the word "terminal" would not apply. (Docket Entry No. 47, pp. 109-111). Bronstad testified that the NCHRP Report 350 definition of "terminal" is how the term is reasonably understood by a person skilled in the art, and that Trinity used a "nearly identical" definition.

The NCHRP Report 350 was published by the Transportation Research Board in 1993 to provide "recommended procedures for evaluating the safety performance of various highway safety features." (Def.'s Prel. Inj. Hrg. Ex. 11, T00517). The Federal Highway Administration requires all roadway safety devices used on the national highway system to meet performance standards set out in the NCHRP Report 350. (Docket Entry No. 47, pp. 150-51). Dr. Sicking was an author of the report. (Def.'s Prel. Inj. Hrg. Ex. 11, T00515; Docket Entry No. 42, p. 135, ln. 17-19). The glossary of the NCHRP 350 includes the

following definitions:

Terminal A device designed to treat the end of a longitudinal barrier. A terminal may function by (a) decelerating a vehicle to a safe stop within a relatively short distance, (b) permitting controlled penetration of the vehicle behind the device, (c) containing and redirecting the vehicle, or (d) a combination of a, b, and c.

Longitudinal Barrier A device whose primary functions are to prevent vehicular penetration and to safely redirect an errant vehicle away from a roadside or median hazard. The three types of longitudinal barriers are roadside barriers, median barriers, and bridge rails.

Truck-Mounted Attenuator (TMA) An energy-absorbing device attached to the rear of a truck or utility vehicle. A TMA is designed to provide a controlled stop of a vehicle impacting the rear of the truck.

(Def.'s Prel. Inj. Hrg. Ex. 11, T00695-96).

The NCHRP Report 350 defines a "terminal" as attached to a "longitudinal barrier," which includes "roadside barriers, median barriers, and bridge rails." This is consistent with the '003 Patent's use of "terminal" to refer to the end of a "guardrail" or an "elongated barrier [that] extendsparallel to the roadway along the side of the roadway" and is "anchored" to the roadway to prevent perpendicular movement of a vehicle leaving the roadway. The NCHRP Report 350 distinguishes between a "longitudinal barrier" and a "roadside hazard." A longitudinal barrier's "primary functions are to prevent vehicular penetration and to safely redirect an errant vehicle away from a roadside or median hazard." The longitudinal barrier keeps the vehicle from hitting the roadside hazard; the hazard itself is not the barrier. The NCHRP Report 350 discusses truck mounted attenuators in a separate section from the section on "terminals and crash cushions." (Id. at T00520-21). The glossary defines a "truck mounted attenuator" as a "device attached to the rear of a truck or utility vehicle ... designed to provide a controlled stop of a vehicle impacting the rear of the truck." The glossary does not include a "truck" in the definition of "terminal" or "longitudinal barrier." Devices attached to the ends of longitudinal barriers-"terminals"-are different from those devices attached to trucks and working vehicles. The NCHRP Report 350 provides support for Trinity's position that a "terminal" refers to the device at the end of a "longitudinal barrier," not to the back of a truck or work vehicle.

Trinity argues that this court should adopt the NCHRP Report 350 definition as "the ordinary and accustomed meaning of the word 'terminal' in the roadside safety device field." (Docket Entry No. 59, p. 19). In *Vitronics,* the court stated that "[a]lthough technical treatises and dictionaries fall within the category of extrinsic evidence, as they do not form a part of an integrated patent document, they are worthy of special note." 90 F.3d at 1584 n. 6. The court described treatises and dictionaries as "more objective and reliable guides" than expert testimony. Id. at 1585. "Unlike expert testimony, these sources are accessible to the public in advance of litigation. They are to be preferred over opinion testimony, whether by an attorney or artisan in the field of technology to which the patent is directed." *Id.*

The intrinsic evidence, particularly the specification, suggests that a "terminal" is attached to an elongated barrier that is anchored to prevent the impacting vehicle's perpendicular movement and does not include a truck or work vehicle. Bronstad testified that the term "terminal" would not ordinarily be understood to describe the end of a truck. The MPS Report 350 definition supports this testimony. The patent language does not suggest that the applicants intended "terminal" to include the end of a truck or work vehicle. *See*

Markman, 52 F.3d at 980 ("[A] patentee is free to be his own lexicographer ... The caveat is that any special definition given to a word must be clearly defined in the specification.") (internal citation omitted). No special definition is provided here. However, this court notes that even if KKI's proposed definition was adopted, a truck or work vehicle is not "similar" to an "elongated barrier."

The parties do not dispute that the TRACC contains a "terminal." The issue is whether the MPS 350 also contains a "terminal." The MPS 350 truck-mounted attenuator is attached to a truck, not to a roadside barrier, median barrier, or bridge rail. Unlike longitudinal barriers such as a guardrail, median barrier, or a bridge rail, a truck or work vehicle is not anchored to the roadside. A truck or work vehicle is not designed to redirect and stop an impacting vehicle. A truck or work vehicle is a roadside hazard, not a barrier designed to prevent an impact with a hazard. The MPS 350 may be used not only when the truck to which it is attached is stationary, but also when the truck is traveling slowly behind a group of vehicles. None of the traditional longitudinal barriers, such as a guardrail or bridge rail, is attached to a moving object.

This court finds that KKI has failed to make a clear showing of a reasonable likelihood of success in proving that the MPS 350 includes a "terminal."

B. Do the MPS 350 and the TRACC Have a "Cutting Section"?

[15] The parties dispute the definition of "cutting section" and whether the MPS 350 and the TRACC have the claim 6 "cutting section" limitation. KKI defines "cutting section" as "the area where the claimed 'cutting means' cuts the claimed 'cutable member.' " (Def.'s Prel. Inj. Hrg. Ex. 68, Pl.'s Answers to Def.'s Interrogatories at 4). KKI asserts that "cutting section" does not refer to a structure, but rather is "[used] as a locative term to simply identify the area where the claimed cutting takes place." (Docket Entry No. 58, p. 12). KKI relies on the specification of the '003 Patent and Dr. Sicking's testimony to support its proposed definition.

Trinity defines a "cutting section" as "a structure that includes the 'cutting means,' that is aligned with the 'cutable member' and the 'impact head' along a common axis, and that is moved with respect to the 'cutable member' by the 'impact head' during an impact." (Pl.'s Prel. Inj. Hrg. Ex. 70, p. 6). Trinity relies primarily on the specification of the '003 Patent to support its proposed definition. Trinity contends that "the 'cutting section,' among other things, must be a structure." (Docket Entry No. 59, p. 20).

Claim 6 states that: (1) the "terminal" includes an "cutting section"; (2) the "cutting section" is "positioned in the energy-absorption terminal"; (3) the "cutting section" is "aligned" with the "cutable member" and the "impact head"; (4) "cutting section" and the "cutable member" are "forced together when the impact head ... is impacted by a vehicle"; and (5) the "cutting section" and the "cutable member" are "moved with respect to each other by the impact head." (Docket Entry No. 33, Ex. A, col. 9, ln. 50-col. 10, ln. 2). Trinity asserts that a structure can be "forced together" with another structure and "moved with respect to" another structure, but that an area or location in space cannot. (Docket Entry No. 59, p. 21).

Trinity points to the specification to support its position that the term "cutting section" describes a structure, not simply a location. The "Summary" section of the '003 Patent states that "[t]he cutting section includes a tube having one or more cutting members within it and a deflection plate." (Docket Entry No. 33, Ex. A, col. 2, ln. 43-44). The "Detailed Description" section uses the words "cutting section" in the following ways:

... [the terminal's] narrower end connected to one end of the cutting section ... (col. 4, ln. 26-27);

... [a vehicle] pushes the impact head 30 and the cutting section 36 forwardly along the guardrail ... (col. 4, ln. 31-32);

[t]he guardrail 16 may be severed into partly separated portions or only scored to provide partial grooves, depending on the nature of the cutting section ... (col. 4, ln. 33-35);

... allow the guardrail to be fed through the cutting section ... (col. 4, ln. 48);

[t]he cutting section 36 is open, having supports such as support 44 forming a guide the receives the W-beam as the cutting section 36 and impact head 30 are moved with respect to the W-beam 16 so that the W-beam moves into the hollow portion of the cutting section 36 and hits the cutters ... (col. 5, ln. 13-17);

[t]he cutting section 36 includes a cutter holding section 52 and a hollow receiving section 42, each aligned with the other and fastened together so that there is a continuous passageway ... (col. 5, ln. 40-43);

[t]he cutting section 36 includes a square tubular steel frame 56 having the cutters 40A-40C welded within it to be horizontal ... (col. 5, ln. 55-57).

The language in the specification shows that the applicants used "cutting section" to refer to a structure, not simply a location in space where a certain activity occurs. The clearest illustrations are the language stating that the narrow end of the terminal is "connected to one end of the cutting section" and that the vehicle "pushes ... the cutting section forwardly along the guardrail." (Docket Entry No. 33, Ex. A, col. 4, ln. 26-27 & ln. 31-32). The "cutting section" is described as having "supports," including a tube with cutters mounted or welded within it, and as moving with respect to a beam. These statements in the specification are inconsistent with KKI's proposed interpretation of "cutting section" as a location or area where an action takes place.

The drawings and summary of drawings in the '003 Patent support this court's finding. Figure 8 is described as "a fragmentary end view of a cutting section." (Id., col. 3, ln. 42). It shows three cutter blades spaced within a rectangular and hollow structure; the entire structure, including the blades, is labeled as the "cutting section." Figure 9 is described as "another cutting section [ ] having a single steel wedge [ ] having a forward pointed edge [ ] welded to the sides of the steel open frame [ ] of the cutting section." (Id., col. 7, ln. 16-19).

KKI relies on extrinsic evidence, including Dr. Sicking's testimony and Albritton's deposition testimony, to support its position that the term "cutting section" refers to a location or area, not a structure. If the intrinsic evidence, including the claim language and the specification, unambiguously define a claim term, resort to extrinsic evidence is inappropriate. *See* Vitronics, 90 F.3d at 1584; Markman, 52 F.3d at 983. The intrinsic evidence clearly defines a "cutting section" as a structure, making reliance on inconsistent extrinsic evidence, such as expert testimony, inappropriate.

Trinity's definition incorporates multiple elements of claim 6 that describe the function and position of the "cutting section." Trinity defines "cutting section" as "a structure that includes the 'cutting means,' that is aligned with the cutable member and the impact head along a common axis, and that is moved with respect to the cutable member by the impact head during an impact." (Docket Entry No. 59, p. 20). This court addresses the position and function of the cutting section separately, because they relate to the "alignment"

and "cutting means" limitations of claim 6, rather than to the definition of "cutting section." Claim 6 clearly defines the "cutting section" as including the "cutting means." The specification of the '003 Patent consistently describes the "cutting section" as a structure that includes the "cutting means" and in which cutting occurs. The intrinsic evidence leads this court to conclude that "cutting section" in claim 6 means "the structure(s) or part(s) of a structure in which cutting occurs, including the cutting means." FN9

FN9. This definition is similar to a definition that Trinity proposed earlier in the proceedings. In its Disclosure of Claims Terms Interpretation before the preliminary injunction hearing, Trinity defined "cutting section" as "a portion or part of an object where something is wholly or partly penetrated." (Pl.'s Prel. Inj. Hrg. Ex. 14, p. 2).

The TRACC and the MPS 350 have a "cutting section" under this definition. KKI identified the "cutting means" in the accused devices as the cutter plate and the backup plates. In the TRACC and MPS 350, cutting occurs as the outside angled edges of the cutter plate contact the rip plates, which are held in place by the backup plates. The "cutting section" includes the cutter plate and the sections of the backup plates that hold in place the sections of the rip plates that are cut.

KKI has met its burden of showing a reasonable likelihood of success in proving that each of the accused devices includes a "cutting section."

C. Do the MPS 350 and the TRACC Have the Alignment Limitation?

[16] The "alignment" limitation of claim 6 of the '003 Patent requires:

said one of said cutting section and cutable member being positioned in the energy-absorption terminal aligned with the impact head and the other of said cutting section and cutable member;

(Docket Entry No. 33, Ex. A, col. 9, ln. 56-59). Trinity asserts that this limitation requires "(1) that either the 'cutting section' or the 'cutable member' must be positioned in the energy-absorption terminal and (2) that the 'cutting section,' the 'cutable member' and the 'impact head' must all be positioned along the same general axis." (Docket Entry No. 59, p. 22). Trinity disputes that this "alignment" limitation is present in the MPS 350 and the TRACC.

KKI notes that claim 6 includes a second "alignment" limitation:

said energy-absorbing terminal including one of the cutable member and the cutting section aligned with each other wherein the cutable member, and cutting section are forced together when the impact head of the energy-absorbing terminal is impacted by a vehicle;

(Docket Entry No. 33, Ex. A, col. 9, ln. 61-65). KKI states that:

[t]he first "aligned" limitation states that the "cutable member" and the "cutting section" are aligned with the "impact head." This first "aligned" limitation also states that the "cutable member" and the "cutting section" are "aligned" with another "cutting section" and "cutable member." This first "aligned" limitation on its face precludes the "common axis" interpretation proposed by [Trinity]. Because there are two sets of "cutting sections" and "cutable members" aligned with each other, and both sets are aligned with the "impact head,"

it is clear that the claim language is not speaking of a "common axis," which would be physically impossible.

(Docket Entry No. 58, p. 17). KKI argues that the second alignment limitation, requiring the "cutable member" and "cutting section" to be aligned with each other so that they are forced together by the impact head, requires the "cutable member" and the "cutting section" to be positioned so that as the impact head is pushed by the vehicle, the cutting section contacts or moves along the cutable member. (Id.). KKI asserts that claim 6 does not require "that the 'cutable member' and the 'cutting section' 'be positioned along the same axis' and 'share a common axis' as proposed by Trinity." (Id. at 17-18).

Trinity responds that KKI's interpretation contradicts the language of the '003 Patent. Trinity asserts that claim 6 recites a single "cutting section" and a single "cutable member," and does not refer to a second "cutting section" or "cutable member." (Docket Entry No. 59, p. 23). Trinity asserts that the phrases "one of said cutting section and cutable member" and "the other of said cutting section and cutable member" refer to a single set, consisting of one cutting section and one cutable member. Id. The phrase "one of said cutting section and cutable member" refers to one of the items from the set, either the cutting section or the cutable member, and the phrase "the other of said cutting section and cutable member" refers to the other item of the single set. Id.

This court agrees that claim 6 refers to a single cutting section and a single cutable member, not two of each. Under claim 6, the system includes:

a cutting section; and

a cutable member having an axis;

(Docket Entry No. 33, Ex. A, col. 9, ln. 53-54). Every disclosed embodiment in the specification has one cutting section and one cutable member. Although the specification states that any number of cutters may be used, nothing in the specification describes more than one cutting section or more than one cutable member. KKI's interpretation, requiring two pairs of a cutting section and a cutable member, is inconsistent with the specification and the preferred embodiments it describes. The Federal Circuit has stated that "[s]uch an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support ...." Vitronics, 90 F.3d at 1583-84 (citing Modine Mfg. Co. v. United States Int'l Trade Comm'n, 75 F.3d 1545, 1550 (Fed.Cir.1996)); *see also* Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996) ("We share the district court's view that it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way."). KKI has not offered evidentiary support, much less "highly persuasive" evidentiary support, to support its position that the '003 Patent necessarily describes a pair of cutting sections and a pair of cutable members, precluding their alignment on a common axis.

This court begins with the claim language to determine whether the "alignment" limitation requires the cutting section and the cutable member to be aligned along a common axis with the impact head. The only reference in claim 6 to an "axis" is the description of "a cutable member having an axis." (Docket Entry No. 33, Ex. A, col. 9, ln. 54). The applicants could have required that the cutting section and impact head be "aligned along the same axis" or "a common axis" with the cutable member, but they did not.

Trinity argues that the specification uses the term "aligned" to refer to a common axis. Trinity relies on the

following aspects of the specification:

In FIG. 5, there is shown a side elevational view of the terminal assembly 18 having a hollow impact head 30 and a cutting section 36. The cutting section includes a cutter holding section 52 and a hollow receiving section 42, each aligned with the other and fastened together so that there is a continuous passageway 54 throughout the interior of the receiving section 42, cutter holding section 52 and the interior of the impact head 30.

(Docket Entry No. 33, Ex. A, col. 5, ln. 38-45). Trinity asserts that figure 5 shows the cutter holding section and hollow receiving section positioned along a common axis.

The specification describes figure 10 as "a fragmentary view of a W-beam 16 having three V-shaped cuts 86A, 86B, and 86C positioned to be aligned with the cutter blades 40A, 40B and 40C." (Id., col. 7, ln. 26-29). Trinity asserts that "[h]ere again, the inventors used the word 'aligned' to mean positioned along a common axis." (Docket Entry No. 59, p. 23). The specification describing figure 10 does not support Trinity's construction; the v-shaped cuts do not necessarily have an axis or share a "common axis" with the cutter blades. The claim language and the specification appear to use the term "aligned" to refer to the relative position of the v-shaped cuts and the cutter blades. The "alignment" causes the cutter blades hit the cutable member at the v-shaped cuts. There is no "common axis," but rather two parts, the cutter blades and the v-shaped cuts of the cutable member, that are positioned to engage one another in a particular way.

Trinity cites Webster's Dictionary to support its interpretation of the "alignment limitation," stating that the dictionary definition of the word "align" is "to bring into line or alignment." (Docket Entry No. 59, p. 22; Def.'s Prel. Inj. Hrg. Ex. 12, citing WEBSTER'S DICTIONARY 28 (10th ed.2000)). However, the Dictionary also defines "align" as "to be in or come into precise adjustment or correct relative position," and it defines "alignment" as "the act of aligning or state of being aligned; *esp:* the proper positioning or state of adjustment of parts (as of a mechanical or electronic device) in relation to each other." (Id.). The term "aligned" describes the relative position of certain parts, not necessarily that those parts share a common axis.

The "aligned" limitation in claim 6 does not require the impact head, cutting section, and cutable member to share a common axis or be positioned along the same axis. Claim 6 does require the specified parts to be positioned relative to one another so that they interact in the described manner. In other words, claim 6 requires that the cutting section, cutable member, and impact head be positioned relative to each other so that when a vehicle impacts the impact head, the impact head forces the cutable member and cutting section together.

KKI has identified the "impact head" as the square rectangular metal frame that forms the exposed end of the TRACC that the vehicle strikes on impact, and the square rectangular plate that forms the end of the MPS 350 directly behind a truck. (Pl.'s Prel. Inj. Hrg. Exs. 18, 22). When a vehicle impacts the impact head of the TRACC, the impact head pushes the sled holding the cutter plate, along the rip plates (the cutable member) and the backup plates (the other part of the cutting means). The cutting section is the sled, including the cutter plate and the sections of the backup plates to which the sections of the rip plates that are cut are bolted. Cutting occurs as the movement of the impact head forces the cutter plate to contact the rip plates, which are attached to the backup plates. The impact head in the TRACC is positioned relative to the cutting section and the cutable member so that the cutting section and cutable member are forced together by the impact head. When a vehicle strikes the impact head of the MPS 350, the impact head pushes the rip

plates (the cutable member) and the back up plates (part of the cutting means) toward the cutter plate (the other part of the cutting means). The cutting section is the cutter plate mounted beneath the truck and the backup plates holding the sections of the rip plates that get cut. The movement of the impact head forces the cutter plate and backup plates (the cutting section) and the rip plates (the cutable member) together. The alignment limitation is present in both accused devices.

This court finds that KKI has shown a reasonable likelihood of success on the merits of its claim that the TRACC and the MPS 350 have the "alignment" limitation.

D. Do the MPS 350 and the TRACC Contain the Cutting Means Limitation?

[17] Claim 6 of the '003 Patent provides that:

said cutting section including cutting means positioned to cut said cutable member as the cutable member and cutting section are moved with respect to each other by the impact head.

(Docket Entry No. 33, Ex. A, col. 9, ln. 65-col. 10, ln. 2). The parties refer to this as the "cutting means" limitation.

The parties agree that the "cutting means" limitation is a "means plus function" limitation and must be analyzed under 35 U.S.C. s. 112(6). *See* Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1361 (Fed.Cir.2000) (use of word "means" creates presumption that 35 U.S.C. s. 112(6) applies). Section 112(6) states that:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The first step in analyzing a means-plus-function limitation is determining the function recited in the claim limitation. The second step is identifying the structure disclosed in the specification for performing that function. Both steps are matters of claim construction and are questions of law. The court then compares the accused devices to determine whether they contain structures that are the same or equivalent and perform the same function. *See* Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308-09 (Fed.Cir.1998).

The '003 Patent states that the cutting means must be positioned to "cut" the cutable member. The parties agree that the function of the cutting means is to "cut" the cutable member, but they dispute the meaning of "cut." Trinity asserts that during the prosecution of the '003 patent, KKI defined "cut" to exclude tearing, shredding, breaking, buckling, or fracturing.

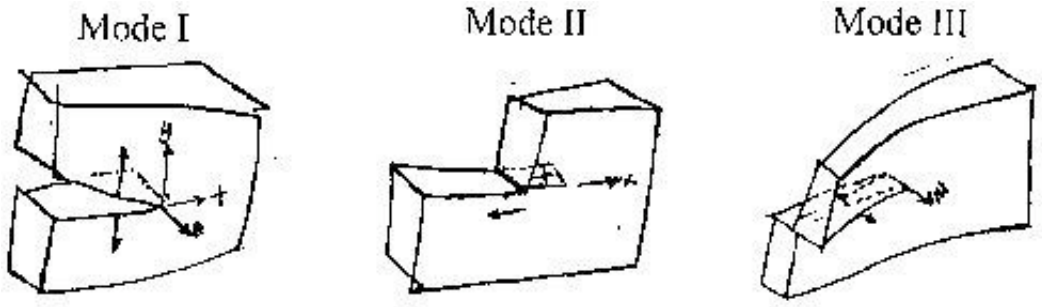
KKI responds that the patent examiner rejected claim 17 based on the Bronstad Patent. To distinguish that patent, the applicants asserted that the Bronstad bolts, which were blunt or curved, did not "cut," as required by the cutting means limitation. The bolts caused failure by shredding, tearing, breaking, buckling, or compression, not "cutting." In reversing the examiner's rejection of the applicants' claims, the Board of Patent Appeals held that the applicants' invention used cutters to "slice the rail with a 'shearing' action" and that "an artisan would readily recognize the basic difference between cutting as disclosed in this application

and the shredding disclosed by Bronstad." (Def.'s Prel. Inj. Hrg. Ex. 2, tab 26, p. 7).

Webster's Dictionary defines "cut" as "to penetrate with or as with an edged instrument." (Def.'s Prel. Inj. Hrg. Ex. 12 (citing WEBSTER'S DICTIONARY 285 (10th ed.2000))). Trinity asserts that "cut" should be defined to include only "material deformation processes that 'slice' with a 'shearing' action." (Docket Entry No. 59, p. 26). Webster's Dictionary defines "slice" as "to cut with or as with a knife," and "shear" as "to cut with something sharp." (Id. at 1100). Trinity asserts that the applicants "surrendered any coverage that may have been available for a structure that has a blunt edge." (Docket Entry No. 59, p. 28).

KKI disputes this inference. KKI asserts that the '003 Patent does not describe either the wedge or the dual plate cutter as having a sharp edge. KKI asserts that the applicants defined the "cutting means" in claim 6 "to exclude a Bronstad Patent type shredder that makes use of the blunt semicircular curved face of splice bolts contacting metal material between spaced openings in guardrail slots perpendicular to the plane of the slots to cause failure by fracture, compression, and buckling of the guardrail material." (Docket Entry No. 58, p. 16). KKI asserts that the "cutting" described in claim 6 "does not include this 'shredding' technique of striking slotted guardrail material with the perpendicular approach of the blunt side of a splice bolt, which causes metal between the opening of guardrail slots to buckle and fail in double sheer compression (Fracture Mode II)." (Id.). KKI asserts that the "cutting" action in claim 6 "causes tearing and failure in tension (Fracture Modes I & III)." (Id. at 15).

KKI presented an expert in fracture mechanics, Dr. Paul Packman, to testify as to three types of failure, known as fracture modes I, II, and III. (Docket Entry No. 42, pp. 147-55). Mode I, or "opening mode," occurs when two faces of a crack move directly away from each other in the Y direction. Mode II, or "forward shear," occurs when the two faces of the crack slide over each other in the X direction; it is an "in plane" failure mode. Mode III, or "transverse tearing mode," displaces the two faces of the crack in the Z direction; it is an "out of plane" failure mode. Dr. Packman drew the following diagrams to explain the failure modes:



(Pl.'s Prel. Inj. Hrg. Ex. 71).

Trinity asserts that Dr. Packman's testimony is extrinsic evidence that should not be relied upon to define the "cutting means" limitation. The '003 Patent does not use the terms "mode I," "mode II," or "mode III" fracture, and these terms are not part of the prosecution history.

This court begins by evaluating the intrinsic evidence. The most frequently used term in the specification to describe what the cutting section does is the word "cut." The patent does not define the word "cut." For example, the specification states that the cutting section is used to "cut" a guardrail, (Docket Entry No. 33, Ex. A, col. 4, ln. 32); three cutters may be positioned "to cut [the guardrail] in three parallel lines," (col. 5, ln. 10-12); the "terminal and rail are moved together for cutting," (col. 5, ln. 22-23); the "cutters may be three steel blades ... to cut the rail," (col. 5, ln. 59-61); the blade may make "relatively straight cuts ... in the rail without absorbing energy by squeezing or extruding," (col. 6, ln. 1-2). The specification also describes this cutting action as to "slice the rail [ ] with a shearing action." (Id. at col. 5, ln. 18-19).

The prosecution history provides critical evidence as to how the applicants defined the "cutting means." The applicants made the following statements in prosecuting the patent, distinguishing the bolts in the Bronstad Patent from the "cutting means" described in the '003 Patent:

-> **Bronstad does not cut** the guardrail with a cutting section **but instead pulls two parallel sections of the guardrail** with respect to each other **so that the bolts deform the metal** where they are connected to the breakaway post. A person of ordinary skill in the art viewing these references **would not be taught to use a cutting section or cutters that are forced into a guardrail to cut it** because they teach in directly the opposite direction from the recited structure." (Def.'s Prel. Inj. Hrg. Ex. 2, tab 12, p. 8)(emphasis added).

-> Bronstad involves "parallel guardrails which are moved with respect to each other so that the **bolts** bolting them together tear at the metal." (Id. at 7)(emphasis added).

-> "Bronstad discloses **bolts** in slots which are **intended to slit** portions between a line of holes. **Applicant does not believe,** based on applicants testing, that those **bolts will cut the guardrail but instead the guardrail fails by buckling. At most,** with small enough bolts, **it may fracture** pieces of the guardrail. **Cutting means is not,** using ordinary language of this art, **readable on Bronstad's bolts which** are at best holding means which **force compression and bending** of the guardrail **or fracturing** parts of it." (Id., tab 16, p. 8; tab 24, p. 17)(emphasis added).

-> "The patent to Bronstad does not contain the overall teaching but obtains energy absorption by forcing the **blunt side of bolts** into sections of the guardrail barrier and dissipating energy by **breaking** the separating portions between the holes ...." (Id. at tab 16, p. 9; tab 24, p. 8)(emphasis added).

-> "**Bronstad does not have a cutting section but does have bolts** in slots connected to posts. Bronstad's concept is that **the material between the slots will be broken** as the guardrail is moved. The Examiner erroneously concludes that the bolts extending through the rails is a combination of a cutting section and a cutable section. It is not and Bronstad has no such teaching." (Id. at tab 24, pp. 20-21) (emphasis added).

The Board of Patent Appeals agreed with the applicants' distinction between their invention and the Bronstad Patent, stating as follows:

In this case, the specification discloses (1) the **cutters are wedge shaped** (p. 7), and (2) the **cutters slice** the rail 16 **with a "shearing" action**. In our view, an artisan would readily recognize the **basic difference between cutting** as disclosed in this application **and** the **shredding** disclosed by Bronstad. Accordingly, it is our determination that the claimed "cutting means" is not readable on the bolts 50 of Bronstad since the **bolts** 50 **will shred out** rail material, **not "cut"** the rail material.

(Def.'s Prel. Inj. Hrg. Ex. 2, tab 26, p. 7) (emphasis added).

The applicants and the Board of Patent Appeals distinguished the type of failure produced by the blunt, rounded bolts in the Bronstad Patent from the type of failure produced by the dual plate cutter and wedge shaped cutter described in the '003 Patent. Each bolt in the Bronstad Patent presents a rounded surface that contacts the material at a perpendicular angle, causing the material to compress or buckle as the bolt is pushed through the material separating each slot. The bolt punches out the strip of material between each slot along the top and bottom of the bolt.

Unlike the Bronstad Patent, the cutter shapes disclosed in the '003 Patent cause failure along one line-not two-and do not compress or buckle the material. Neither of the '003 Patent "cutting means" punches out, breaks, or shreds a strip of material. Although a series of wedges or dual plate cutters may be placed in parallel planes to cut out strips of material, one dual plate cutter or wedge shaped cutter does not punch out a strip of material. In the '003 Patent, the dual plate cutter contacts the material inside an acute angle formed by the intersection of the two plates, causing the material to fail and separate along one line. It is helpful to imagine holding a pair of scissors so that the blades form a fixed angle and then running the scissors through a piece of wrapping paper, producing a slice in the paper.

The wedge shaped cutter drives into the material, also causing the material to fail and separate along the line created by the leading edge of the wedge. The angled surfaces behind the leading edge open or separate the material after it is cut. It is helpful to imagine swinging an axe into a piece of wood, cutting the wood in a single line and separating the pieces on either side of the line from each other.

The difference between the Bronstad bolts and the '003 cutters is apparent from the intrinsic evidence, particularly the prosecution history. However, this court finds Dr. Packman's testimony helpful for the limited purpose of describing the distinction between buckling or compression and cutting. Dr. Packman's testimony describing the three modes of failure is consistent with the intrinsic evidence, including the applicants' representations during the prosecution history.

The applicants distinguished their cutters from the Bronstad bolts because the bolts caused breaking, buckling, bending, and compression. The applicants noted that the bolts had a blunt surface. Dr. Packman's description of mode II failure, as double-sided in-plane failure in the X-direction, describes the buckling function that the bolts perform as they push the material between the slots in the plane of the material above and below the slots. Dr. Packman distinguished this mode of failure from mode I, or opening mode along a Y-axis, such as would occur with a wedge, and from mode III, or transverse tearing, which involves pushing material out of plane along a Z-axis. Although the applicants did not use the mode I, mode II, and mode III terminology, Dr. Packman's description of these modes is consistent with the distinctions the applicants used.

This court finds that the word "cut," as used in the '003 Patent, means to cause material to fail and separate along one line, by opening the material in the Y-direction or the Z-direction, or by a combination of these two movements. "Cutting" excludes double-sided in-plane failure along an X-axis, such as buckling, compression, bending, or breaking caused by a blunt or rounded surface contacting the material at a perpendicular angle.

This finding is supported by the witnesses' description of the material deformation process caused by the cutter plate in the TRACC and the MPS 350. As the cutter plate moves through the channels created by the

backup plates, the leading edges of the cutter plate contact the rip plates at a forty-five degree angle, causing the rip plate material to fail along a longitudinal line. The cutter plate pushes the material into the channel in the Z-direction and folds the material around the edges of the backup plates in the Y-direction. The TRACC and MPS 350 Patents state that the cutter plate causes the material to "fail in tension." (Pl.'s Prel. Inj. Hrg. Ex. 2, col. 6, ln. 57-60; col. 8, ln. 55-60; col. 19, ln. 36-43; col. 30, ln. 9-13; Pl.'s Prel. Inj. Hrg. Ex. 3, col. 10, ln. 7-12). This "failure in tension" is not failure through buckling or compression. KKI has shown that the cutter plate and backup plates cause failure by "cutting," as opposed to buckling, fracture, shredding, compression, or bending.

[18] Having found that KKI has shown that the accused devices perform the "cutting" function, this court compares the structures used to perform that function in the '003 Patent specification and the accused devices. KKI contends that the TRACC and MPS 350 literally infringe the '003 Patent. "Literal infringement of a s. 112, para. 6 limitation requires that the relevant structure in the accused device perform the identical function recited in the claim and be identical or equivalent to the corresponding structure in the specification." Odetics, Inc. v. Storage Tech. Corp. et. al., 185 F.3d 1259, 1267 (Fed.Cir.1999). The test under s. 112, para. 6 is "whether the differences between the structure in the accused device and any disclosed in the specification are insubstantial." Chiuminatta, 145 F.3d at 1309 (citing Valmont Indus., Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1043 (Fed.Cir.1993) ("In the context of section 112, however, an equivalent results from an insubstantial change which adds nothing of significance to the structure, material, or acts disclosed in the patent specification.")).

The Federal Circuit has narrowed the tripartite test for equivalents under the doctrine of equivalents to provide the test for insubstantial differences under s. 112, para. 6. Odetics, 185 F.3d at 1267. An equivalent under the tripartite test "performs substantially the same function in substantially the same way to obtain the same result." Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608, 70 S.Ct. 854, 94 L.Ed. 1097 (1950). Under s. 112, para. 6, functional identity is required, so the content of the test reduces to "way" and "result." Odetics, 185 F.3d at 1267. The s. 112, para. 6 statutory equivalence analysis requires a determination of whether the 'way' the assertedly substitute structure performs the claimed function, and the "result" of that performance, is substantially different from the "way" the claimed function is performed by the corresponding structure, acts. or materials described in the specification, or its "result." *Id*. The differences between the patent and the assertedly equivalent structure are "insubstantial" if the assertedly equivalent structure performs the claimed function in substantially the same way with substantially the same result. *Id; see* IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1435 (Fed.Cir.2000). The *Chiuminatta* court noted that the way the compared structures in that case, a skid plate and soft rubber wheels, performed the claimed function was different. 145 F.3d at 1309. Whether an accused device is a s. 112, para. 6 equivalent is a question of fact. *See* Palumbo v. Don-Joy Co., 762 F.2d 969, 975 (Fed.Cir.1985), *overruled on other grounds by* Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995); Odetics, 185 F.3d at 1269; IMS Tech., 206 F.3d at 1430. *See also* Markman, 52 F.3d at 977 n. 8 (noting that the overruling of *Palumbo* did not affect that case's s. 112, para. 6 holdings).

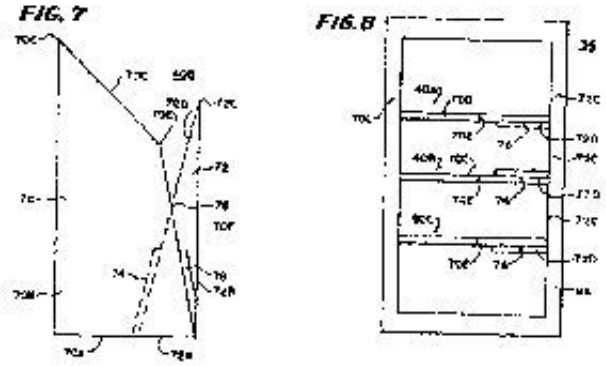
Because KKI is seeking a preliminary injunction, it must show a reasonable likelihood of success in demonstrating that the TRACC Patent and the MPS 350 Patent infringe the '003 Patent. Trinity must raise a substantial question as to infringement to avoid a preliminary injunction. Genentech, 108 F.3d at 1364.

Figures 7 and 8 of the '003 Patent show the cutter as two steel plates that are welded together in coplanar positions forming an acute angle in which cutting occurs (the "dual plate cutter"). Figures 9 and 15 show a "wedge shaped cutter." Trinity disputes that the TRACC and the MPS 350 contain a cutter that is an

identical or equivalent structure to the dual plate cutter or the wedge shaped cutter.

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The Dual Plate Cutter

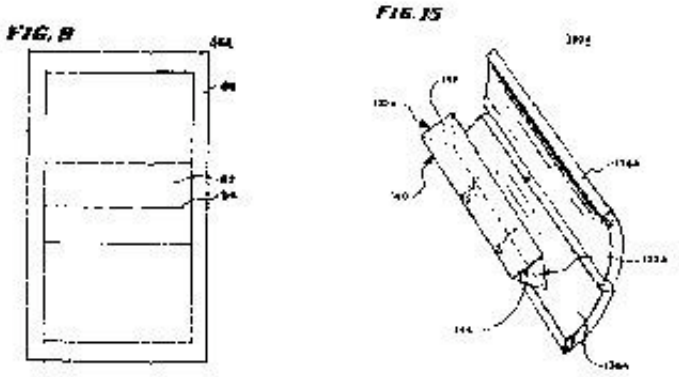


The '003 Patent describes the dual plate cutter as follows: The first steel plate 70 has a base edge 70A, which ... is approximately four and seven eighth inches long, an upwardly extending side edge 70B which is approximately eight inches high and ends in a point 70C, the side edge 70B forming a right angle with the base edge 70A. A side edge 70D slants downwardly from the peak 70C to a point 70E and then at an angle slants downwardly more steeply along a edge 70F to the other side of the base edge 70A.
The second steel plate 72 has a base edge 72A which ends at the bottom end of the edge 70E for the first plate 70 and extends perpendicularly upwardly along an edge 72B to a point 72C lower than the point 70C. From the point 72C, an edge 72D of the second plate 72 extends downwardly to the base 72A at a sharp angle so that it is spaced from the edge 70E until approximately one-third of the distance to the base 72A. Where the edges 72D and 70E cross at a point 76, an acute angle is formed. The welds 74 and 76 are closer to the bases 70A and 72A to hold the plates together.

The location of the point 76 is positioned to engage the W-beam 16 (FIGS. 1 and 2) when a vehicle such as 12 engages the impact head .... The cutter blades in the preferred embodiment are three-eighth inches in thickness.

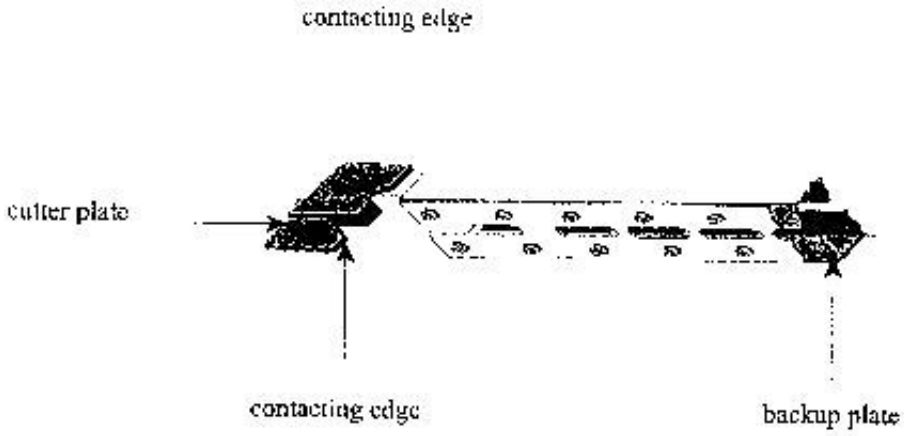
(Docket Entry No. 33, Ex. A, col. 6, ln. 29-54). Figure 8 shows three "cutter blades" including "[t]he plates 70 and 72 shown in FIG. 7." (Id., col 6, ln. 55-61).

The Wedge Shaped Cutter



The '003 Patent describes figure 9 as a "single steel wedge 82 having a pointed forward edge 84 welded to the sides of the steel open frame 86 of the cutting section." (Id., col. 7, ln. 16-18). Figure 15 is "a simplified embodiment 130A of a cutter of the type shown in FIG. 9 adapted [for a particular use]." (Id., col. 8, ln. 25-29).

The parties have identified the cutting means of the TRACC and the MPS 350 as the cutter plate and the backup plates.



Dr. Sicking testified that the backup plate and cutter plate in the accused devices are "virtually identical" to the dual plate cutter. (Docket Entry No. 42, pp. 58-59, 73-75). Dr. Sicking described the leading edge of the cutter plate as one of the plates and the backup plate as the other plate in the dual plate cutter "turned sideways." Id. While the dual plate cutter cuts the material at the center of the angle formed by the intersection of the plates, the cutting means in the accused devices shift the angle so that cutting occurs along the side of the angle formed by the leading edge of the cutter plate and the backup plate. Dr. Sicking testified that this was "just a minor change in angle" and amounted to an "insubstantial difference." (Id.). Dr. Sicking also compared the cutting means in the accused devices to the wedge shaped cutter, stating that

the rounded edge of the cutter plate "gives you somewhat of a wedge shape because it's a little bit bevelled [sic] on the sides." (Id. at 74).

Trinity responds that the dual plate cutter in the '003 Patent is significantly different from the cutting means in the TRACC and MPS 350. Trinity has identified the following differences: (1) the dual plate cutter is composed of two plates in parallel planes while the cutter plate and backup plate are in perpendicular planes; (2) the two plates are welded together while the cutter plate and backup plate are not connected; (3) the two plates form a "sharp area" at their intersection while the cutter plate has blunt, rounded edges; (4) both plates in the dual plate cutter move with respect to the cutable member while only the cutter plate moves with respect to the rip plate; the backup plate does not move; and (5) the dual plate cutter slices with a shearing action while the cutter plate rips or tears the cutable member by tension and out of plane bending. Trinity also asserts that the applicants limited their claim as to the dual plate cutter to plates that have a sharp edge. The '003 Patent specification uses the words "blade" and "shears" to describe the dual plate cutter. Although these words may suggest a sharp edge, the patent does not state that the edges of the plates must be sharp or pointed. In fact, Figure 8 appears to show the dual plate cutter as having square edges, not sharp, knife edges. The applicants did not describe the dual plate cutter as "sharp" or "knife like" in prosecuting the patent. The intrinsic evidence does not support Trinity's position that KKI limited the dual plate cutter to a cutter that has sharp or knife-like edges.

However, Trinity has identified several substantial structural differences between the dual plate cutter in the '003 Patent and the cutting means in the accused devices. Because of these differences, Trinity has raised a substantial question as to whether its devices perform the cutting function in substantially the same way as the '003 Patent.

There are numerous structural differences in the cutters and cutting means of the TRACC and MPS 350 on the one hand and the '003 Patent on the other. In the '003 Patent, the plates in the dual plate cutter are welded together in parallel planes to form an acute angle and move as one unit perpendicularly along the cutable member. By contrast, in the TRACC and the MPS 350, the cutter plate and backup plate are positioned perpendicularly to each other, are not welded together, and do not move as one unit. They are positioned to form a forty-five degree angle, rather than an acute angle. Unlike either of the plates in the dual plate cutter, the backup plate is parallel to the rip plate and is bolted to the rip plate. The backup plate is not moved with respect the rip plate. While both plates of the dual plate cutter "cut" the material, the backup plate does not "cut" the material; according to KKI's own description, the backup plate "supports" the rip plate as it is cut by the cutter plate. Neither of the plates in the dual plate cutter performs a similar function. While the plates of the dual plate cutter of the'003 Patent meet at a point (point 76 in Fig. 7 of Pl.'s Prel. Inj. Hrg. Ex. 1), in the TRACC Patent, there is a quarter-inch of space between the top of the cutter plate and the top backup plate, and a quarter-inch of space between the bottom of the cutter plate and the bottom backup plate. (Pl.'s Prel. Inj. Hrg. Ex. 1, col. 6, ln. 48-51; Def.'s Prel. Inj. Hrg. Ex. 23). In the '003 Patent, the cutting means engages the cutable member at the point where the plates of the dual plate cutter meet. Unlike the '003 Patent, in the TRACC and the MPS 350 Patents, there is no point where the backup plate meets the cutter plate to make the cut in the rip plate.

These structural differences raise a substantial question as to whether the TRACC and MPS 350 perform in a way that is not substantially similar to the '003 Patent. In the TRACC and MPS 350, the backup plate is stationary, and holding the cutable member stationary, while the cutter plate cuts the rip plate. The backup plate and cutable member do not move with respect to one another. According to Albritton and the language of the TRACC and MPS 350 Patents, the "cut" resulting from the cutter plate passing through the rip plate

is a tensile failure, different from the "shearing" by the "shear-type" cutters of the '003 Patent as described in the '003 Patent and by the Board of Patent Appeals and Interferences. (Docket Entry No. 48, pp. 39, ln. 9-p. 41, ln. 20; Pl.'s Prel. Inj. Hrg. Ex. 1, col. 2, ln. 47; Pl.'s Prel. Inj. Hrg. Ex. 2, col. 8, ln. 55-60; Pl.'s Prel. Inj. Hrg. Ex. 3, col. 10, ln. 7-12; Def.'s Prel. Inj. Hrg. Ex. 2, tab 26, p. 7). According to the TRACC and MPS 350 Patents, the forty-five degree angle formed by the cutter plate and the backup plate "is selected to cause the energy absorbing elements 100 to **fail in tension** as they are stretched between the respective grips 94 and 96 of the associated support beams 90." (Pl.'s Prel. Inj. Hrg. Ex. 2, col. 8, ln. 55-60; Pl.'s Prel. Inj. Hrg. Ex. 3, col. 10, ln. 7-12) (emphasis added). The TRACC and MPS 350 Patents talk of "stretching," unlike the '003 Patent, which talks of "shearing."

Additionally, the amount of energy absorbed in the '003 Patent, according to the language of the patent, depends on the geometry of the design. The '003 Patent device can be designed to provide a selected amount of energy dissipation by selecting the number of cutters, the shape of the cutters, and the cross-sectional area of the resulting guardrail remnants after cutting. (Pl.'s Prel. Inj. Hrg. Ex. 1, col. 8, ln. 38-48). According to the language of the '003 Patent, the energy absorption of the '003 Patent "depends on the thickness and structure of the beam being cut and the shape and thickness of the cutter," as well as the number of cuts made. (Pl.'s Prel. Inj. Hrg. Ex. 1, col. 7, ln. 6-12). The TRACC Patent describes its energy absorbing properties as dependent in part upon the tensile strength of the rip plate. The energy absorbed can be controlled from application to application by selecting "appropriate metal alloys" with the desired tensile strength. (Pl.'s Prel. Inj. Hrg. Ex. 2, col. 8, ln. 61-66; col. 8, ln. 37-39). The metal used in the TRACC's rip plates is "preferably galvanized to retain [its] desired tensile strength." (Id. at col. 8, ln. 61-66). This underscores Albritton's contention that the TRACC device primarily fails in tension, a different "way" of failing than the cutting or "shearing" caused by the "shear-type" cutters in the '003 Patent device, as the Board of Patent Appeals described the '003 Patent. (Def.'s Prel. Inj. Hrg. Ex. 2, tab 26, p. 7; Pl.'s Prel. Inj. Hrg. Ex. 1, col. 2, ln. 47).

In addition, Albritton explained the importance and engineering advantages of the forty-five degree angle to the reliability and function of the cutter plate. He noted that the energy dissipation capability of the TRACC and MPS 350 devices was much more predictable than the '003 Patent would produce as a result of the forty-five degree angle. (Docket Entry No. 47, p. 172, 1.20-p. 173, 1.10; Docket Entry No. 48, p. 77, 1.19-p. 79, 1.17).

Finally, if the TRACC and MPS 350 operated in the same "way" as the '003 Patent device, then when the cutter plate of the TRACC and MPS 350 engaged the rip plate, there would be two cuts made by the cutter plate in the rip plate, one at the angle formed by the top of the cutter plate and the upper backup plate, and another by the bottom of the cutter plate and the lower backup plate. The two cuts would form a ribbon of material from the rip plate. However, according to Albritton, the TRACC and MPS 350 devices create only one cut, down the center line of the slots of the cutable material and backup plate. (Docket Entry No. 48, p. 35, 1.1-p. 36, 1.3; Docket Entry No. 47, p. 172, 1.20-p. 173, 1.14). To the extent ribbons of material are formed by the cutter plate as it passes through the rip plate, Albritton contends that only small snippets are formed, and only after the initial tensile failure created when the cutter plate passes through the rip plate. (Docket Entry No. 47, p. 185, 1.9-p. 187, 1.22). Albritton's testimony raises a substantial question as to how the ribbons were formed by the TRACC and MPS 350 devices, and, by extension, how those devices actually function as compared to the '003 Patent.

Comparing the dual plate cutter of the '003 Patent and the cutter plate of the TRACC and MPS 350 devices, this court finds that Trinity has raised a substantial question of fact concerning infringement, precluding the

issuance of a preliminary injunction. Trinity has raised a substantial question of fact as to whether the differences between the dual plate cutter of the '003 Patent and the cutter plate/backup plate system of the TRACC and MPS 350 Patents cause the two devicesto perform in ways that are not substantially similar.

KKI also compares the cutting means in the accused devices to the wedge shaped cutter. Trinity asserts that the wedge shaped cutter is different from the cutting means in the accused devices in the following ways: (1) the wedge has a sharp edge, while the cutter plate has blunt, rounded edges; (2) the wedge is positioned perpendicular to the cutable member, while the cutter plate is positioned at a forty-five degree angle to the rip plate; and (3) the face of the wedge is composed of two intersecting planes while the top surface and bottom surface of the cutter plate do not intersect.

Trinity also disputes that the cutter plate is a "wedge" because its edge is rounded. The '003 Patent specification describes the wedge as having a "forward pointed edge." (Docket Entry No. 33, Ex. A, col. 7, ln. 17-18). Figure 15 shows the wedge shaped cutter as having a sharp or pointed edge. The intrinsic evidence supports Trinity's position that a wedge has a linear or pointed edge, as opposed to a rounded edge. The top and bottom sides of the cutter plate do not intersect, as they would in a wedge. A wedge separates material in the Y-direction by mode I or "opening mode" failure; the cutter plate is angled to push the material out in the Z-direction, either in fracture mode III, or a combination of fracture mode I and fracture mode III failure, or as a tensile failure. The TRACC patent and Albritton's testimony describe a failure mode inconsistent with a wedge-shape cutter.

Comparing the wedge-shaped cutter of the '003 Patent and the cutter plate of the TRACC device, this court finds that Trinity has raised a substantial question of fact concerning infringement. Trinity has raised a substantial question of whether the differences between the wedge shaped cutter of the '003 Patent and the cutter plate/backup plate system of the TRACC Patent cause the two devices to perform in ways that are not substantially similar.

This court finds that Trinity has raised a substantial question whether the differences between the cutting means in the '003 Patent and the accused devices are more than "insubstantial" differences. KKI has failed to show that the TRACC and MPS 350 contain a cutting means that is an identical or equivalent structure to the dual plate cutter or the wedge shaped cutter. By failing to show that the accused devices contain the "cutting means" limitation, KKI has failed to make a clear showing of a reasonable likelihood of success on the merits of its infringement claim. *See* Chiuminatta, 145 F.3d at 1309 (accused device did not contain means-plus-function limitation because it did not contain identical or equivalent structure to patented device, and thus did not infringe under s. 112, para. 6); Valmont, 983 F.2d at 1044-45 (finding no infringement where although accused device performed "the same function" and achieved "substantially the same result," it did so in a "very different way," using a means that was not an identical or equivalent structure under section 112(6)).

CONCLUSIONS OF LAW

This court finds that KKI has not met its burden of showing a reasonable likelihood of success on the merits of its claim that the TRACC and MPS 350 literally infringe claim 6 of the '003 Patent. KKI has not shown a reasonable likelihood of success on the merits of its claim that the MPS 350 contains the "terminal" limitation and that either the MPS 350 or the TRACC contains a structure that satisfies the "cutting means" limitation. Trinity has raised substantial questions as to whether the accused devices contain each element of claim 6, making a preliminary injunction inappropriate. *See* Genentech, Inc. v. Novo Nordisk, A/S, 108 F.3d

1361, 1364 (Fed.Cir.1997) (stating that preliminary injunction should not issue if alleged infringer raises "substantial question" as to infringement) (quoting New England Braiding Co. v. A.W. Chesterton Co., 970 F.2d 878, 882-83 (Fed.Cir.1992)). In light of KKI's failure to make the requisite showing as to a reasonable likelihood of success on the merits, this court does not reach the other preliminary injunction factors and the issues of validity and enforceability.

This court DENIES KKI's motion for preliminary injunction.

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