In the United States Court of Federal Claims

No. 11-84C

(Filed: June 7, 2013)

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LIBERTY AMMUNITION, LLC,	)	Patent case; claim construction for United States Patent No. 7,748,325
Plaintiff,	)	
v.	)	
UNITED STATES,	)	
Defendant.	)	

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CLAIM CONSTRUCTION ORDER

LETTOW, Judge.

In this patent case, Liberty Ammunition, LLC ("Liberty") alleges that the United States ("the government") through the Department of Defense ("DOD") has infringed upon its patent for a firearms projectile, United States Patent No. 7,748,325 (the '325 patent), and thus is liable for damages under 28 U.S.C. § 1498(a).[1] This patent pertains to lead-free "green bullet" technology.

[1]Subsection 1498(a) of Title 28 provides in pertinent part:

> Whenever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use

The parties have submitted proposed constructions of the claim terms of the '325 patent. *See* Joint Claim Construction Statement, Ex. A, ECF No. 34. Of the fifteen claim terms identified by the parties as requiring construction, only two have an agreed interpretation. *Id.* For those two terms, the court accepts the mutually agreed constructions proffered by the parties. The proper constructions of the remaining thirteen terms were briefed by the parties and argued at a *Markman* hearing held on March 22, 2013.

BACKGROUND

The innovation at issue bears on a bullet recently put into broad use by the U.S. Army, which plaintiff claims is identical to that described in the '325 patent, namely, a projectile which retains the same lethal force of a lead-based bullet but is lead-free and does not carry the negative environmental externalities associated with prior lead-based designs. *See Liberty Ammunition*, 101 Fed. Cl. at 583. The bullet consists of three components: a nose portion, a tail portion, and an "interface" portion connecting the nose and tail. *See* First Am. Compl., Ex. A ('325 patent), at cols. 8-9.

Prior to the advent of green-bullet technology, the standard-issue ammunition for the United States infantry was the M855 bullet. Pl.'s Opening Claim Construction Br. ("Pl.'s Br.") at 1-2. The M855 projectile consisted of a steel penetrator, a lead slug, and a full metal copper jacket. *Id*., Pl.'s App. 1-1.[2] Due to concerns with low lethality and high environmental impact, the Army sought to develop a lead-free alternative, beginning in 1993. *Id.* at 2-3. After failing to develop a satisfactory projectile on its own, the Army entertained submissions from civilian developers. *See id*. at 3-1 to 2. Mr. PJ Marx was among those who responded to the Army, coming forward with a design that Army officials found "very promising." *Id*. at 11-1. Mr. Marx and government representatives entered into three non-disclosure agreements pertaining to this design, signed on February 17, 2005, June 23, 2005, and January 11, 2006, respectively. *See* First Am. Compl., Exs. B, C, D.

> or manufacture the same, the owner's remedy shall be by action against the United States in the United States Court of Federal Claims for the recovery of his reasonable and entire compensation for such use and manufacture.

28 U.S.C. § 1498(a). Liberty also claims that the government breached a confidentiality agreement by disclosing confidential information and by purchasing products embodying this information without consent of Liberty. First Am. Compl. ¶¶ 13, 18; *see also Liberty Ammunition, Inc. v. United States*, 101 Fed. Cl. 581, 586-92 (2011) (upholding the court's subject matter jurisdiction over Liberty's breach-of-contract claims but dismissing a pendent Lanham Act claim on jurisdictional grounds).

[2]Liberty's appendix has been subdivided into tabs. The first number in a citation to this appendix refers to a particular tab, and the number after the hyphen refers to the particular page number within that tab. The pages of the appendix are paginated sequentially within each tab. Thus, "Pl.'s App. 2-1" would refer to the first page of Tab 2.

On October 21, 2005, Mr. Marx applied for what became the '325 patent, which was later assigned to Liberty. First Am. Compl., Ex. A. On review by the assigned patent examiner, this application was initially rejected for enablement on a ground relating to "rifling engaging annular grooves." Def.'s Opening Br. Regarding Claim Construction ("Def.'s Br.") at Def.'s App. A83.[3] The examiner also considered that certain of the claims were anticipated by two prior references, the Hotchkiss patent (U.S. Patent 29,272) and Strandli patent (U.S. Patent 5,388,524). *Id*. at A84-85.[4] Liberty amended the application to address the examiner's objections, Def.'s A98, but the examiner then noted that the application was directed to multiple "patentable distinct species" and required Mr. Marx to elect only a single species, *id*. at A122-23, A132-34. At that point, Mr. Marx elected to pursue those claims which were directed toward projectiles as generically embodied in Figure 1 of the application, shown below. *Id*. at A148.

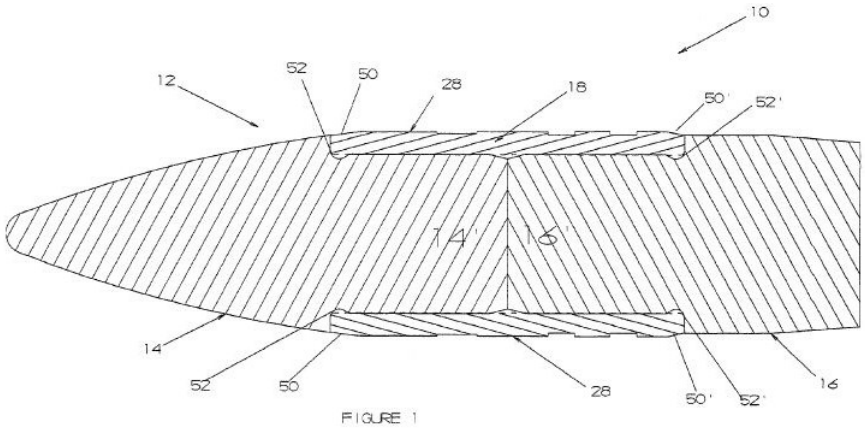

FIGURE 1

[3]The appendix accompanying the government's brief is sequentially paginated and will be cited by page without reference to numbered exhibits, *i.e.*, "Def.'s App. A-__."

Initially, the examiner opined that "the specification, while being enabling for a projectile that comprises annular grooves integrally formed in the exterior surface of the interface component, does not reasonably provide enablement for an embodiment that does not comprise such rifling engaging annular grooves." Def.'s App. A83. Subsequently, however, the applicant and the examiner reached a different conclusion, *viz*., "[s]pecifically, the annular rings noted by Office were only referenced by [a]pplicant in page 3, line 6 of the specification and never disclosed to be essential. Furthermore, annular rings are well known in the prior art and the absence thereof does not render [a]pplicant's claimed invention inoperable." Def.'s App. A162.

[4]The Hotchkiss patent, issued on July 24, 1860, consists of three claims. Hotchkiss projectiles are comprised of a body, a metal belt, and a cap. *See* Def.'s App. A197-98. The improvement upon prior art afforded by Hotchkiss projectiles was that the belt secured the portions of the projectile and "the whole would remain in one single projectile" during firing and flight. *Id*. at A199.

The Strandli patent describes a projectile meant for use in target practice. Def.'s App. A201. These projectiles are formed from a hollow shell, a base, and rod or tube which connects the two prior to firing and impact. *Id*. Such projectiles have no explosive or bursting charges and are meant to prevent dangerous ricocheting of projectile fragments after impact. *Id*. at A204.

After an interview with the examiner, Mr. Marx further amended the claims to use specific words and phrases to describe the elected species of projectile. *See* Def.'s App. A162-63.[5]

The '325 patent was issued by the U.S. Patent and Trademark office on July 6, 2010. The patent consists of two independent claims (Claims 1 and 32) and forty dependent claims. Claim 1 reads:

> A projectile structured to be discharged from a firearm, said projectile comprising:
>
> a body including a nose portion and a tail portion,
>
> said body further including an interface portion disposed in interconnecting relation to said nose and tail portions, said interface portion structured to provide controlled rupturing of said interface portion responsive to said projectile striking a predetermined target,
>
> said interface portion disposed and dimensioned to define a reduced area of contact of said body with the rifling of the firearm, said interface portion maintaining the nose portion and tail portion in synchronized rotation while being fixedly secured to one another by said interface portion whereby upon said projectile striking said predetermined target said interface portion ruptures thereby separating said nose and tail portions of said projectile.

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[5]Among other things, at points in the patent application, Mr. Marx "amend[ed] 'interface' to 'interface portion' to designate the limitation as structural and not relational." Def.'s App. A162. Also, to address the prior art from Hotchkiss (U.S. Patent 29,272), the phrase "controlled rupturing" was used, reflecting agreement that "the 'controlled rupturing' of the interface as claimed by [a]pplicant is not anticipated, suggested[,] or taught by *Hotchkiss*." Def.'s App. A162. Respecting "the [examiner's prior] anticipation rejection citing *Strandli* (U.S. Pat. 5,388,524)," the claims were amended to "define a reduced area of contact with the rifling" and to refer to an interface that "provide[s] controlled rupturing responsive to impact." Def.'s App. A162.

Specifically:

> [t]he detaching portion of *Strandli* is not disposed and dimensioned to define a reduced area of contact with the rifling. The detaching or bursting portion of *Strand[l]i* is formed integral to the tail and does not interconnect nose and tail as claimed by [a]pplicant. Furthermore, the interface of *Strandli* does not provide controlled rupturing responsive to impact as now claimed by [a]pplicant.

Id.

Claim 32, the second independent claim, describes:

> A projectile structured to be discharged from a firearm, said projectile comprising:
>
> a body including a nose portion and tail portion,
>
> said body further including an interface portion disposed intermediate opposite ends of said body in interconnecting relation to said nose and tail portions, said interface portion structured to provide controlled rupturing of said interface portion responsive to said projectile striking a predetermined target, said interface portion maintaining said nose portion and tail portion in synchronized rotation while being fixedly secured to one another by said interface portion whereby upon said projectile striking said predetermined target said interface portion ruptures thereby separating said nose and tail portions of the projectile; and
>
> said exterior surface of said interface portion disposed and structured to define a primary area of contact of said body with an interior barrel surface of said firearm.

In 2010, the U.S. Army announced the development of its own bullet, the 5.56mm M855A1 Enhanced Performance Round.[6] Liberty alleges that the M855A1 is a copy of its patented green bullet, and thus that its manufacture and use infringes the '325 patent. First Am. Compl. ¶ 8.

PROCEDURAL HISTORY

After Liberty filed suit in this court on February 8, 2011, the government moved for dismissal of the breach-of-contract count, at which point Liberty amended its complaint and the parties stipulated to denial of the government's motion to dismiss. *See* Joint Stipulation Regarding Pl.'s First Am. Compl. (July 18, 2011), ECF No. 11. A second motion to dismiss was filed by the government on July 28, 2011, pertaining to Liberty's non-patent claims. After briefing and a hearing, the court held that Liberty's claims related to the non-disclosure agreements were properly before the court, but that claims arising under the Lanham Act and under Florida unfair-competition law were not. *See Liberty Ammunition*, 101 Fed. Cl. at 586-92. The parties then proceeded with discovery and claim construction.

DISCUSSION

A. *Standards for Claim Construction*

[6]On May 7, 2010, the Army submitted Patent Application No. 61332631 for its bullet, but this application apparently has been abandoned. *See* Pl.'s Br. at 13.

The scope and meaning of claims in a patent are questions of law to be addressed by the court. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-90 (1996). The most salient indicia of the construction of claim terms are found in the patent itself. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("[I]ntrinsic evidence is the most significant source of the legally operative meaning of disputed claim language."). As a result, the court focuses on the patent's claims and specifications, as well as prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370. A court should construe claim terms according to the ordinary and customary meanings attributed by those of ordinary skill in the art at the date of the invention, which is the effective filing date of the patent application. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 (Fed. Cir. 2003) (considering those with ordinary skill in the art); *Markman*, 52 F.3d at 980 ("Th[e] construction of the patent is confirmed by the avowed understanding of the patentee, expressed by him, or on his [be]half, when his application for the original patent was pending.") (quoting *Goodyear Dental Vulcanite Co. v. Davis*, 102 U.S. 222, 227 (1880)).

A term with an "ordinary" meaning may require construction where the term might have more than one ordinary meaning, where the specifications indicate a claim may have a different scope, or where the ordinary meaning does not resolve the parties' dispute as to the proper claim scope. *MarcTec, LLC v. Johnson & Johnson*, 664 F.3d 907, 920 (Fed. Cir. 2012). Additionally, a patentee may use ordinary words in an atypical fashion, identifying those unorthodox meanings in the patent specification or file history. *See Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1578 (Fed. Cir. 1996). Accordingly, "it is always necessary to review the specifications to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." *Vitronics*, 90 F.3d at 1582; *see also Markman*, 52 F.3d at 979. Prosecution history also may be important, both for the exclusion of such interpretations as were disclaimed during prosecution of the patent and for any possible introduction of new terms that may require interpretation. *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995). Each term should be interpreted within the context of its use. *Phillips*, 415 F.3d at 1314 ("[T]he context in which a term is used in the asserted claim can be highly instructive.").

Extrinsic evidence, such as expert testimony, inventor testimony, dictionaries, and scientific treatises, should be regarded as "less significant than the intrinsic record" when constructing the claim terms. *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc. v. United States Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). It may be relied upon by the court only if the intrinsic evidence cannot resolve ambiguities in the disputed claim terms. *See C.R. Bard*, 388 F.3d at 862 ("Our caselaw suggests that extrinsic evidence cannot alter any claim meaning discernible from intrinsic evidence.").

B. *Specific Terms of the Claims Requiring Construction*

1. *"Interface" or "interface portion."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means an outer portion of the claimed projectile that holds the nose and tail portions together prior to striking a target.	Means an outer portion of the claimed projectile that (1) holds the nose and tail together prior to striking a target and (2) is not restricted in length, and thus can be extended to enclose one or both ends of the projectile.

Term 1 appears throughout the patent claims and the specification. Both independent claims (Claims 1 and 32) contain the term, as do dependent Claims 2-9, 11-12, 14, 20-28, 31, and 33-42. The court must adopt a construction of the term which encompasses all such uses. *See Phillips*, 415 F.3d at 1314 ("Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.").

Both Liberty and the government urge a construction inclusive of "an outer portion of the claimed projectile that holds the nose and tail portions together prior to striking a target." The point of contention is whether the term must also include a stricture suggested by the government: that the interface or interface portion "is not restricted in length, and thus can be extended to enclose one or both ends of the projectile." Based on a plain reading of the patent as a whole, the court cannot adopt this additional limitation in its construction of Term 1.

The independent claims are silent as to the length of the interface, indicating no particular restriction in length. Dependent Claim 20, however, expressly limits the length of the interface to 30 to 70 percent of the projectile length, and dependent Claim 21 limits the length of the interface to be equal to or "less than 50% of the overall projectile length." Construing Term 1 to prohibit length restrictions would result in an inconsistency between usage of the term in the independent claims and the dependent claims. The term, as it is employed in this patent, may designate either an interface with a length restriction, or an interface without a length restriction. In short, a reference to "interface" or "interface portion" does not itself encompass the presence or absence of a length restriction, and therefore the characteristic of "not restricted in length" should not be read into the term. *Phillips*, 415 F.3d at 1315 ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.").

Furthermore, certain claims dependent upon Claim 1 describe embodiments in which the interface encloses at least one of the nose or tail. *See* Claims 8, 10. Yet, neither Claim 32 nor any of its dependent claims describe such an embodiment. Claim 32 references an interface portion "disposed intermediate opposite ends" of the body, indicating that an embodiment based on Claim 32 would require the interface to be positioned between the tail and nose, but not necessarily enclosing the tail or nose. The question of whether interfaces may be extended to enclose the nose, tail, or both, is addressed by several specific dependent claims in the patent,

and that characteristic will not be read into the term as used in independent Claims 1 and 32 and in numerous other claims of the patent.

For the reasons above, the court adopts plaintiff's construction of Term 1, *i.e.*, that the interface or interface portion means **an outer portion of the claimed projectile that holds the nose and tail portions together prior to striking a target**.

2. *"Structured to provide controlled rupturing."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means that the interface portion is structured to rupture (*i.e.*, break) upon striking a predetermined target, separating two or more of the components of the projectile [the specifics of which are described in each claim and their dependent claims].	Means that the interface portion is structured (or constructed) so that as the claimed projectile penetrates a predetermined target, such as a soft material target, the projectile begins to tumble and this tumbling leads to the interface rupturing, causing the nose and tail portions to separate.

This term appears in both of the independent claims, *i.e.*, Claims 1 and 32. The crux of the parties' disagreement over Term 2 appears to be whether the projectile is designed to be ruptured through tumbling alone or whether it could be ruptured by various means, including but not limited to tumbling, upon striking a target or object. Under the government's view, the '325 patent is limited to those projectiles which are ruptured through tumbling, which tumbling is the direct cause of the separation of the nose and tail. The court cannot adopt such a limited construction of Term 2.

The specification states that tumbling "typically result[s] in the interface rupturing." '325 patent at col. 3, lines 6-7. A few paragraphs later, the specification again describes a projectile rupturing after striking a soft target, "[d]ue at least in part to the forces exerted on the projectile body and the structural features of the interface during such tumbling." *Id.* at col. 5, lines 18-21. However, a predetermined target is not necessarily equivalent to a soft target. *See id.* at col. 5, lines 12-16 ("[S]eparation of the nose and tail portions from one another and possibly from the interface is facilitated when the projectile body strikes at least one predetermined category of targets such as, *but not necessarily limited to*, a soft target." (emphasis added)).

The '325 patented projectiles are designed to rupture, or to break into two or more components, responsive to striking a target or object, which may or may not be a soft target. Certainly, tumbling is one such means by which the projectile is ruptured and breaks into pieces. It is not the only means, however. *See* '325 patent at col. 5, lines 25-26 ("[T]he interface ruptures upon striking the target *and/or* during the tumbling procedure." (emphasis added)). Liberty recites in its brief a variety of factors which may affect whether a projectile experiences tumbling or some other species of rupture such as shearing, bursting, splitting, dislocating, bending, buckling, crunching, or fragmenting, including: "projectile yaw and the angle of attack between the velocity vector of the projectile and yaw angle, wind direction and speed, the target class (hard, soft, other), [and] the projectile velocity." Pl.'s Br. at 6. A cursory examination of the various embodiments modeled in the specification provides ample basis for the inference that

the component parts of a '325 projectile may be ruptured or broken through bursting, dislocating, or other action, even in the absence of a tumbling motion. *See, e.g.*, '325 patent, Figs. 1A, 1C, reproduced below:[7]

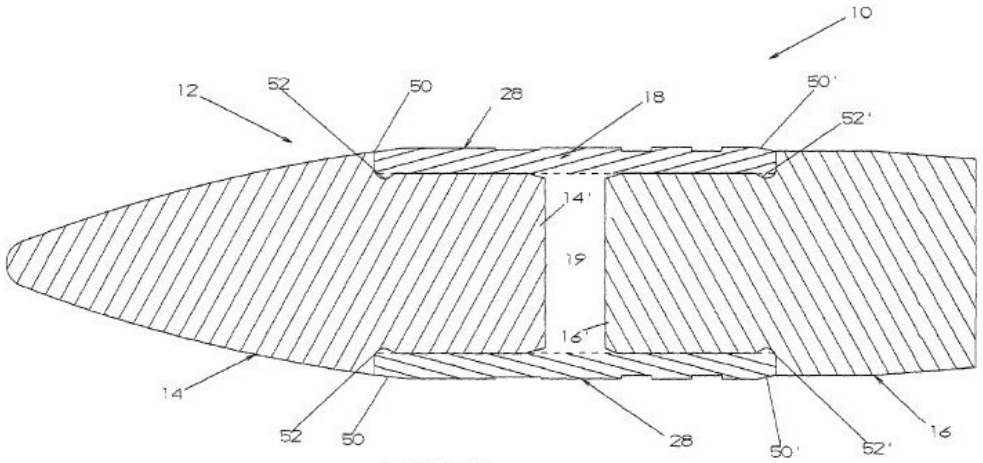

FIGURE 1A

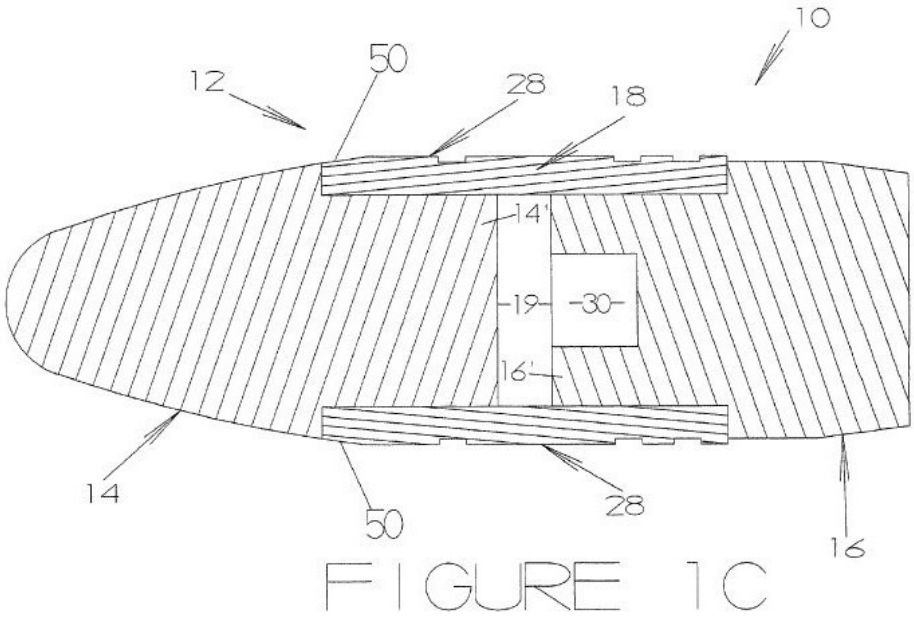

FIGURE 1C

[7]Essentially, all separations are caused by a combination of bending and buckling forces. *See e.g.*, Hr'g Tr. 31:21 to 32:22 (Mar. 22, 2013). Among other things, the interface and tail are softer and more malleable than the nose and thus more susceptible to distortion and dislocation. As the nose portion encounters a target, its speed inevitably decreases while the tail continues at the original rate of speed for an instant. The sudden disparity in rates of travel causes the tail to slam into the nose, either buckling or bending (or both) the tail and interface, and perhaps also the nose, which become separated by the disparate forces being applied to the elements of the projectile. Whether this separation takes the form of tumbling, bursting, splitting, or other action depends on the specific force vectors applied at impact.

Additionally, the specification refers separately to "controlled fragmentation" in context with, but separable from, "tumbling." '325 patent at col. 5, lines 26-30 ("[T]he structural and operational features of the projectile provide a controlled fragmentation when the projectile body strikes at least a predetermined target, such as a soft material target including a human, animal, etc."); *see also id*. at col. 2, lines 56-57 ("controlled fragmentation of the projectile body"); *id*. at col. 2, lines 62-63 ("controlled fragmentation of the projectile").

The government argues that tumbling must be inexorably linked to rupturing because "[e]very time the word rupture appears in the patent, the word tumble or tumbling appears in close proximity." Hr'g Tr. 68:10-12. Yet, not a single instance of the words "tumble" or "tumbling" appears in any of the forty-two enumerated claims, whether in relation to soft targets or otherwise. Contrastingly, "rupturing" or some variation thereof appears no fewer than six times. In attempting to import a limitation from the specification into the claims, the government would have the court commit a "cardinal sin" of patent law. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001) ("[O]ne of the cardinal sins of patent law [is] reading a limitation from the written description into the claims.").

In short, the government's attempts to link all controlled rupturing to tumbling is contrary to the plain language of the claims and the specification of the '325 patent. Accordingly, the court adopts a modified form of plaintiff's proffered construction of Term 2, that is, "structured to provide controlled rupturing" means that **the interface portion is structured to rupture (*i.e.*, break) upon striking a target or object, separating two or more of the components of the projectile**.

3. *"Reduced area of contact."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means that the outer surface of the interface has one or more areas of circumference less than the maximum outer circumference of the interface.	Means that the area of contact between the projectile and the rifling of the firearm is less than that of a traditional jacketed projectile, which includes the M855.

This term appears in independent Claim 1. Both parties' proffered constructions appear to be problematic. Liberty's proposed construction is self-referential, defined by a comparison between the interface and part of the interface. While Claim 1 addresses an interface "disposed and dimensioned to define a reduced area of contact of said body with the rifling of the firearm," it gives no clues within the claim itself as to what the area of contact has been reduced *from*. Liberty's definition does nothing to alleviate the problem of this missing antecedent. The term described by Liberty is not an area of contact which has been "reduced" from anything; possibly it more accurately describes an interface which is simply "smaller in some places than in others." Portions of the interface which are "reduced" under Liberty's definition could not possibly also be "areas of contact," since their comparative circumference would preclude contact with the rifling of a firearm. If Liberty means instead to say that "reduced area of contact" indicates that

there is less contact by the projectile with the rifling than there conceivably could have been, the term is reduced to mere tautology.

The government's proposed construction is more coherent in that it provides a referent for the claimed reduction: the area of contact is reduced compared to that of a "traditional jacketed projectile, which includes the M855." This comparison is somewhat consistent with the patent history set out in the specification, which notes that reduced contact area "compared to conventional projectiles" would improve upon prior art by "reducing heat buildup and improving barrel performance during sustained fire of the firearms." '325 patent at col. 1, lines 65-66 and col. 2, lines 46-49. The "conventional projectiles" referred to in the specification must logically be limited to those projectiles comparable to the ones enabled by the '325 patent, which is to say "all calibers generally ranging from .17 through [.]50 BMG." *Id*. at col. 2, line 28.[8] This is a more precise description of the limitation than "traditional jacketed projectile[s], which includes the M855" as offered by the government.

The government's definition also is partially deficient because it mischaracterizes the particular surface described in the '325 patent. Rather than the projectile generally, as the government indicates, it is the interface portion specifically which comprises the reduced area of contact. *See* Claim 1 ("said interface portion disposed and dimensioned to define a reduced area of contact of said body with the rifling of the firearm"); *see also* '325 patent at col. 2, lines 58-61 ("The disposition and structuring of the interface results in the positioning of an outer surface thereof so as to define the primary contact area between the body of the projectile and the rifling or interior surface of the barrel.").[9]

The court adopts a construction of Term 3, "reduced area of contact," as meaning that **the area of contact between the interface and the rifling of the firearm is less than that of a traditional jacketed lead bullet of calibers .17 through .50 BMG**.

4. *"Synchronized rotation."*

This term appears in independent Claim 1, and the parties agree that it means **that the nose, tail, and interface portions rotate in the same direction and at the same rate**. The court accepts and adopts this construction.

[8]"BMG" specifically refers to the Browning Machine Gun and thus ".50 BMG" refers to the cartridge developed for that machine gun (used for some time with the military-standard M2 heavy machine gun).

[9]The closely related Term 14 pertains to "primary area of contact."

5. *"Fixedly secured."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means that the nose, tail, and interface portions are connected, subject to being detached upon striking an intended target.	Means that the nose, tail, and interface portions are connected to each other in a secured fashion (*e.g.*, by employing a press-fitted frictional connection, and/or adding interior peripheral rims at the ends of the interface), such that the projectile assembly remains intact (and in synchronized rotation) during launch and flight from the firearm.

This term appears in independent Claims 1 and 32. The parties concur that the crux of Term 5 is that the three component parts of a '325 projectile are "secured" to each other, meaning that they are connected prior to use in the firearm. The parties diverge over whether a description of the projectile's condition during launch and flight is appropriate, as well as whether methods of connection need be addressed in claim construction.

The government's inclusion of the projectile's condition "during launch and flight" is an appropriate addition to Liberty's construction of Term 5 because that condition is essential to the proper function of the interface. The term "fixedly secured" appears once in each of the independent claims, both times in the context of describing the state of the projectile before impact ("fixedly secured") versus after impact ("ruptured"). The court thus finds it appropriate to incorporate the description of the condition of the projectile during launch and flight into its construction of Term 5. Contrastingly, the examples of methods employed to affix the components to each other in the government's proposed construction ("press-fitted frictional connections and/or interior peripheral rims") are extraneous, unnecessary, and not supported by the text of the claims, and will not be imported by the court into its construction.

For the above reasons, Term 5, "fixedly secured," means **that the nose, tail, and interface are connected to each other in a securely fastened way such that they stay intact during launch and flight, prior to striking the target**.

6. *"Removably connected to and separable."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Plain meaning.	Means that at least one of the nose and tail portions are designed to separate from the interface (and thus separate from each other) upon striking a predetermined target.

This term appears in dependent Claim 2. The plain meaning of Term 6 is not far afield from the elaborated definition offered by the government. However, the government would insert "design" into the construction of Term 6 with reference to the nose or tail. That reference is not supported by the patent claims. Instead, the interface is an integral element of the design.

The court adopts the following construction for Term 6: "removably connected to and separable" means **that the nose, tail and interface are joined together in a way susceptible to separation upon striking a target or object**.

7. *"Separable from said interface."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means that at least one of the nose or tail portions can separate from the interface upon striking a predetermined target.	Means that the nose and/or tail portions are designed to separate from the interface after striking a target.

Term 7 appears in dependent Claims 2, 3, 9, and 11. The term is similar to Term 6, and Liberty's and the government's constructions are closely akin to one another. Although Term 7 appears in Claims 2, 3, 9 and 11, only in Claims 2 and 3 is the claim tied to striking a "predetermined target" or "target" as suggested by both parties. Nonetheless, the patent as a whole indicates that separation of the nose and tail from the interface occurs as and when the projectile strikes a target or object. And, as with Term 6, the government's insertion of "design" is not well taken here.

The court adopts the following construction for Term 7: "separable from said interface" means **that at least one of the nose or tail portions can separate from the interface upon striking a target or object**.

8. *"Cooperatively structured."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Plain meaning.	Means that the nose, tail, and interface portions are designed and configured to facilitate separation of the nose and tail portions after striking a predetermined target.

Term 8 appears in dependent Claim 5 of the '325 patent. Contrary to plaintiff's assertion, Term 8 requires more elaboration than plain meaning. The government's proposed construction is a valuable starting point, although not ideal. The government again inserts a "design" element where none is indicated in the patent or its specification. Claim 5, where Term 8 makes its sole appearance in the patent claims, uses "cooperatively structured" to describe the interaction between the nose, tail, and interface portions of the projectile.[10] The government's construction fails to account for the presence of the interface at the moment of separation, though the interface manifestly is one of the "cooperative components" of the projectile. *See* '325 patent, col. 7, lines 39-47 (referring to the benefits and advantages accruing from "the cooperative components of the nose portion, tail portion, and interface.").

[10]Claim 5 covers "[a] projectile as recited in claim 1 wherein said nose and tail portions and said interface are cooperatively structured to separate said nose and tail portions from one another upon said body striking a predetermined target."

Accordingly, the court adopts the following construction for Term 8: "cooperatively structured" means **formed and configured to enable the separation of the nose and/or tail portions from the interface in response to striking a target or object.**

9. *"Open ended construction."*

This term appears in dependent Claim 7, and the parties agree that it means **that the interface is not enclosed on at least one end.** The court accepts and adopts this construction.

10. *"Dimensioned and configured to receive at least one of said nose or tail portions therein."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Plain meaning.	Means that the hollow interior of the interface allows for insertion of (1) a portion of (or all of) the nose portion, or alternatively, (2) a portion of (or all of) the tail portion.

This term appears in dependent Claim 8. The government's proposed claim construction is directly at odds with the plain meaning of Term 10, and consequently cannot be accepted by the court. The term in plain language describes an interface which may receive "at least one" of the nose or the tail portion of the projectile.[11] By saying "at least one," the claim contemplates an embodiment where both the nose and the tail might be received by the interface. This contemplation is confirmed in and by Claim 10, which is dependent on Claim 8, through its description of an embodiment where both the nose and tail are received within the hollow interior of the interface.[12] When the government states that Term 10 in Claim 8 describes an interface which receives "the nose portion, *or alternatively*… the tail portion," it precludes the possibility of an interface receiving both the nose *and* the tail. For that reason, government's proffered construction renders Claim 8 too narrow to encompass its dependent Claim 10, and cannot be adopted by the court. *See Dow Chem. Co. v. United States*, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000) (holding that an independent claim or a claim upon which another claim depends, must by definition have broader scope than a dependent claim). The government in its reply brief concedes that the phrase "or alternatively" should be revised to "and/or" to resolve this issue. *See* Def.'s Reply Regarding Claim Construction at 15.

Additionally, the government seeks with its construction to introduce a new limitation in the term by altering the phrase "at least partially hollow interior," which appears in Claim 8, to "hollow interior," as stated in its proffered construction. Such a deviation is not warranted by any text of the patent or its specification.

[11]Claim 8 pertains to "[a] projectile as recited in claim 1 wherein said interface comprises an at least partially hollow interior dimensioned and configured to receive at least one of said nose or tail portions therein."

[12]Claim 10 addresses "[a] projectile as recited in Claim 8 wherein said hollow interior is dimensioned and configured to receive both of said nose and tail portions therein."

Term 10 is already stated in a simple and direct way, and the plain meaning of the term will suffice for its construction. As such, the court adopts the plain meaning of Term 10: **dimensioned and configured to receive at least one of said nose or tail portions therein**.

11. *"Dimensioned and configured to receive both of said nose and tail portions therein."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Plain meaning.	Means that the hollow interior of the interface allows for insertion of (1) a portion of (or all of) the nose portion and (2) a portion of (or all of) the tail portion.

Term 11 appears in Claim 10, which, as previously explained, is dependent upon Claim 8 and thus must correlate to the construction of Term 10 that appears in Claim 8. By describing Term 11 as allowing for insertion of all or part of the nose and the tail portions of the projectile into the interface, the government proffers a construction directly at odds with its rejected construction of Term 10, which permits insertion of all or part of one or the other, but not both. The government cannot posit two entirely contrary constructions for terms so closely linked within the patent. The court's capacity for cognitive dissonance falls short of that required for acceptance of the government's construction.

Aside from internal inconsistencies, the government's proposed construction for Term 11 limits the claim in ways not indicated by the patent or its specifications, *e.g.*, by stating that the interface allows for insertion of "a portion of . . . or all of" the nose or tail portions. This elaboration would limit the plain language of Term 11, which states simply that the interface may receive "both of said nose and tail portions."

The meaning of Term 11 is plain on its face. The court thus adopts the plain meaning of Term 11: **dimensioned and configured to receive both of said nose and tail portions therein**.

12. *"Confronting engagement."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means that the trailing end of the nose portion and the forward end of the tail portion are face to face with one another.	Means that the trailing end of the nose portion and the forward end of the tail portion are in physical contact (and not spaced apart).

This term appears in dependent Claim 22.[13] Both parties agree that a "confronting engagement" describes a projectile in which the trailing end of the nose portion and the forward end of the tail portion face each other. The pertinent distinction between Liberty's and the government's proposed constructions of Term 12 is whether the confronting ends of the tail and

[13]Claim 22 states that "[a] projectile as recited in Claim 1 wherein said nose and tail portions include correspondingly positioned ends disposed in confronting engagement with one another or an interior of said interface."

nose portions must be in physical contact with one another. Not much can be gleaned in isolation from the context of the use of the pertinent term in Claim 22. The claim directly following Claim 22, Claim 23, is illuminating in this respect, however. That claim recites an otherwise similar embodiment, but one where the nose and tail are explicitly positioned with a predetermined space between each other, and the phrase "confronting engagement" is conspicuously absent.[14] This context indicates that "confronting engagement" involves physical contact. *See Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999) ("Proper claim construction . . . demands interpretation of the entire claim in context.").

The distinction between a confronting engagement and one where the nose and tail are spaced apart is reinforced in the specification. The specification distinguishes figures 1A and 1C from Figures 1 and 1B, stating that Figues 1 and 1B are "disposed in confronting engagement . . . thereby eliminating the presence of the spacing as represented in F[igures] 1A and 1C." '325 patent, col. 6, lines 9-11. The court accordingly concludes that a confronting engagement requires physical contact between the nose and tail portions of the projectile, as modeled in Figures 1 and 1B.

For the reasons stated, the court adopts the following construction of Term 12: "confronting engagement" means **that the trailing end of the nose portion and the forward end of the tail portion face, and are physically in contact with, each other**.

13. *"Intermediate opposite ends."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Means between the forward end of the nose portion and the trailing end of the tail portion.	Means the interface is positioned between the front end and the rear end of the projectile body (such that the interface does not extend all of the way to the front or to the end of the projectile).

This term appears in independent Claim 32. As discussed with relation to Term 1, "intermediate opposite ends" indicates by its plain meaning an embodiment where the interface is positioned between the tail and nose, though not necessarily enclosing the tail or nose. The government's proposed construction urges the adoption of an additional limitation, that the interface cannot extend to the front or to the end of the projectile. In pointing to the figures included with the patent application, the government correctly points out that no such extended interfaces were depicted as examples. *See* Def.'s Br. at 17. However, the sampling of embodiments provided by the figures does not comprise the entirety of all embodiments enabled by the patent. *Phillips*, 415 F.3d at 1323 ("[W]e have repeatedly warned against confining the claims to those embodiments . . . [and] expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."). Consequently, the explicit limitation sought by the government is not warranted.

[14]Claim 23 pertains to "[a] projectile as recited in claim 1 wherein said nose and tail portions include correspondingly positioned ends disposed a predetermined spaced distance from one another within said interface, said predetermined spaced distance being less than 0.060." This claim essentially correlates to Figures 1A and 1C reproduced *supra*.

The court adopts the following construction of Term 13: "intermediate opposite ends" means **that the interface is positioned between or in the middle of the opposite ends of the forward end of the nose portion and the trailing end of the tail portion**.

14. *"Primary area of contact."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Plain meaning.	Means that the interface portion (1) defines the principal area of contact of the projectile with the barrel of a firearm and (2) is a reduced area of contact.

Term 14 appears in independent Claim 32. The government attempts to import Term 3, "reduced area of contact," which appears in independent Claim 1, into Term 14, thereby imposing the limitation of "is a reduced area of contact" upon all primary areas of contact. Such an imposition is not warranted by the plain language of the patent. In fact, "primary area of contact" appears in Claim 32 at a place corresponding precisely with that of "reduced area of contact" in Claim 1. The interface in a Claim 1 embodiment is a reduced area of contact, while an interface derived from Claim 32 must be a primary area of contact. Such a deliberate shift in terminology cautions against conflation of the two distinct terms. Though their meanings may be similar, and may even be used to describe certain identical objects, the court cannot read into a term what the author of a patent has pointedly declined to provide. The court rejects the government's construction for impermissibly limiting Term 14.

Term 14 is best construed by the plain meaning of "primary area of contact," namely **that the exterior of the interface serves as the primary area where the projectile contacts the interior of a firearm barrel**.

15. *"Tapered portion."*

Plaintiff's Proposed Claim Construction	Government's Proposed Claim Construction
Plain meaning.	Means that the interface portion contains an area (or areas) adjacent to one or both ends that has a gradually reduced outer diameter.

Term 15 appears in dependent Claims 39 and 40. Its plain meaning provides a helpful starting point because the ordinary usages of "tapered" and "portion" are apt in the context of the '325 patent. The court need not resort to anything more complicated than the common meanings of the words when their meaning is obvious and not contradicted by the claims or specifications. *See Phillips*, 415 F.3d at 1314 ("In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words."). Here, the phrase "tapered portion" plainly refers to **a portion of the interface which exhibits a decreasing circumference**.

CONCLUSION

No extrinsic evidence is necessary for resolution of claim construction for the '325 patent. For the reasons detailed above, the fifteen terms identified by the parties shall be construed as stated.

It is so **ORDERED**.

s/ Charles F. Lettow
Charles F. Lettow
Judge