

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Splat-R-Ball, LLC, Daisy Manufacturing Company,
and S-Beam Precision Products Ltd.
Petitioners

v.

Spin Master, Inc.
Patent Owner

U.S. PATENT NO. 8,640,683

Case IPR2023-TBD

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104**

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1017	Publication Declaration of Anna Tanova-Atanasova
1018	N. Gawande, A.A. Mungray, Superabsorbent polymer (SAP) hydrogels for protein enrichment, <i>Separation and Purification Technology</i> (2015)
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1020	“Airsoft Submachine Gun with Laser Sight,” Internet Archive (2006), available at https://web.archive.org/web/20061125021504/http://www.thinkgeek.com/geektoys/warfare/8932/
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1029	“Spitballs Grow up to 200 times their original Size,” YouTube (2010), available at https://www.youtube.com/watch?v=n-Wje1G1wBA
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1034	“Toy-making is serious business in Southern California,” Los Angeles Times (2012), available at http://www.latimes.com/business/la-xpm-2012-dec-22-la-fi-social-enterprise-toys-20121223-story.html
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1050	U.S. Patent No. 7,134,978 (“Liu”)
1051	Daisy Outdoor Products Catalog (2006)
1052	Prosecution History of U.S. Patent No. 8,596,255
1053	Luis E. Martinez, Force-on-Force Police Training Using Airsoft, A Manual for the Law Enforcement Trainer on the use of Airsoft Non-Lethal Technology
1054	Fredric L. Buchholz and Andrew T. Graham, Modern Superabsorbent Polymer Technology, Wiley-VCH (1998)
1055	“One Team, One Product—Many Uses,” Agricultural Research (1996)
1056	“Super Slurper,” Agricultural Research (1975)
1057	U.S Patent No. 3,997,484
1058	“History of Super Absorbent Polymer Chemistry”
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1061	Japanese Industrial Standard JIS K 7223:1996 – Testing method for Water Absorption Capacity of Super Absorbent Polymers
1062	U.S Patent No. 5,660,935
1063	“Superabsorbent Polymers and Superabsorbent Polymer Composites” (2007)

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1067	“Slingshot,” Wikipedia (2022)
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1070	10.25.2022 Infringement Contentions Chart US8640683 for Splat-R-Ball Products

Petitioners Splat-R-Ball, LLC, Daisy Manufacturing Company, and S-Beam Precision Products Ltd. (“Petitioners”) request *inter partes* review of claims 1-14 (“Challenged Claims”) of U.S. Patent No. 8,640,683 (“’683 Patent”) (Ex.1001).

I. INTRODUCTION

The ’683 Patent is directed to “soft-projectile launching devices” for “super absorbent polymer [(SAP)] projectiles.” Ex.1001, 1:12-16. The “projectile launchers” described by the ’683 Patent, including a “gun...bow, crossbow, sling shot, handgun, machine gun, futuristic weapon, [and] catapult,” were ubiquitous and have been used to launch projectiles for more than a century (and, in some cases, millennia) before the alleged invention of the ’683 Patent. *Id.*, 5:3-17.

Applicant purports to have invented the concept of launching a hydrated SAP, which forms a squishy gel ball when soaked in water. Ex.1003, ¶¶1-5, ¶196. But before the earliest claimed priority date, the prior art (e.g., Spitballs) taught using SAPs as ammunition, and it was well known that SAPs were useful for launching because they could be formed in spherical shapes, are soft, and can be launched using air pressure. *Id.*, ¶¶60-68. Applicant did not disclose this art during prosecution, and the Examiner did not consider it. Applicant’s use of century-old mechanisms to launch well-known ammunition is not patentable.

II. MANDATORY NOTICES

A. Real Party-In-Interest

The following are real parties in interest: Splat-R-Ball, LLC, Daisy Manufacturing Company, and S-Beam Precision Products Ltd. (collectively, “Splat-R-Ball”).

B. Related Matters

The ’683 Patent is subject to an action in the United States International Trade Commission, *In the Matter of Certain Soft Projectile Launching Devices, Components Thereof, Ammunition, and Products Containing Same*, Investigation No. 337-TA-1325 (“ITC Case”), to which Spin Master, Inc., Hasbro, Inc., and Petitioners are parties. The ’683 Patent is also the subject of *Gel Blaster, Inc. v. Hasbro, Inc.*, Case No. 1:22-cv-00828 in the Western District of Texas (“District Court Case”), filed October 11, 2022. Petitioners are not parties to the District Court Case. The ’683 Patent is also the subject of *Gel Blaster, Inc. v. Spin Master, Inc.*, IPR2023-00302, filed December 5, 2022.

Petitioners concurrently filed an IPR petition for Related U.S. Patent No. 8,271,282 (the “’282 Patent”). Related ’282 Patent is also the subject of the ITC Case, the District Court Case, and *Gel Blaster, Inc. v. Spin Master, Inc.*, IPR2023-00301, filed December 5, 2022.

C. Counsel and Service Information

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Petitioners concurrently submit a Power of Attorney, 37 C.F.R. §42.10(b), and consents to electronic service directed to the following email addresses: gcutri@kirkland.com, brian.verbus@kirkland.com, jake.rambeau@kirkland.com, SRB_IPR@kirkland.com.

III. PAYMENT OF FEES UNDER 37 C.F.R. §42.103

The undersigned authorizes the Office to charge the fee (*see* 37 C.F.R. §42.15(a)(1)) for this Petition to Deposit Account No. 506092. Review of 14

claims is requested. The undersigned authorizes payment for any additional fees that may be due in connection with this Petition.

IV. CERTIFICATION OF GROUNDS FOR STANDING

Petitioners certify under 37 C.F.R. §42.104(a) that the '683 Patent is available for IPR and Petitioner is not barred or estopped from requesting IPR of the Challenged Claims on the grounds identified in this Petition.

V. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

A. Patent Owner's Claimed Priority Dates

The '683 Patent claims priority to May 10, 2010 and Patent Owner asserts that claims 1, 3, 4, and 11 are entitled to a February 21, 2010 priority date, and for claim 14, an April 8, 2010 priority date.¹

¹ Patent Owner argued in the ITC Case that “[t]he '683 patent is entitled to a priority date of May 10, 2010” and claims 1, 3, and 4 “were conceived no later than February 21, 2010 and reduced to practice no later than April 8, 2010,” claim 11 “was conceived no later than February 21, 2010 and reduced to practice no later than April 27, 2010,” and claim 14 “was conceived and reduced to practice no later than April 8, 2010.” Ex.1036. Patent Owner's earlier alleged priority date is irrelevant for purposes of this Petition because all references relied upon herein are prior art based on a priority date of February 21, 2010. priority date. Petitioners reserve the right to challenge the priority date in other proceedings.

B. Prior Art Printed Publications

Petitioners' challenge is based on the following prior art references, none of which were cited or discussed during prosecution:

- **ThinkGeek Spitballs (“Spitballs”)** –by November 27, 2009, as captured by the Internet Archive, and is prior art under § 102(a).² Spitballs is a listing describing the DuneCraft Spitballs hydrated SAP ammunition available for sale through well-known reseller ThinkGeek.com. Ex.1007; Ex.1003, ¶¶60-68. The PTAB and the Federal Circuit have recognized archived webpages as prior art printed publications. . *Valve Corp. v. Ironburg Inventions Ltd.*, 8 F.4th 1364, 1374-75 (Fed. Cir. 2021) (relying on Wayback Machine to establish date of publication). *Par Pharm., Inc. v. Jazz Pharms., Inc.*, No. 7,765,107 B2, 2016 WL 7985459, at *12 (P.T.A.B. July 27, 2016). The Internet Archive crawls webpages, archives them as they existed on a given date, and includes the exact year/month/day/hour/minute/second on which the webpage was archived in the URL. Ex.1007, ¶1-6.

Prior to February 21, 2010, persons interested and ordinarily skilled in the art of launchers, exercising reasonable diligence, could have located Spitballs. Ex.1003, ¶¶60-68. ThinkGeek was a well-known toy retailer, in particular with

² All citations are to pre-AIA 35 U.S.C. §§ 102/103.

respect to airsoft and nerf-type foam rocket launchers. *Id.* ¶¶61. For example, one 2006 article highlighted a ThinkGeek Airsoft gun, explaining:

Toy guns have come a long way from the days of Nerf. This one, the Airsoft Submachine Gun featured on ThinkGeek, is about as far from those neon-green pistols as they get. It has freaking LASER SIGHT. And an illuminator flashlight built in. And it's so awesome, it comes with protective goggles. ... If you're one of those types who's so hardcore that you play paintball in tanks, then yeah, maybe you'll like this.

Ex.1019; Ex.1020. The WSJ's 2006 buying guide highlighted the ThinkGeek USB Missile launcher that could "aim and fire foam ordinance" as "one of [ThinkGeek's] top selling toys." Ex.1021, 1 (noting ThinkGeek's offering was one of "three popular examples" of a "growing category" of toys). An inventor used ThinkGeek missile launcher components to design a "USB AirSoft Turret." Ex.1022, 1-2. GreenHead includes a May 2006 posting for an "R/C/ Missile Launcher" for "Unstoppable Cube Warfare" that fires foam missiles that is available "from Thinkgeek." Ex.1023, 1. In November 2006, Thinkgeek.com featured a separate category for "warfare" that included 20 items, including an airsoft gun, a foam rocket launcher, a rubberband-powered launcher, a catapult, an indoor paintball simulator, an air-powered marshmallow shooter, and other launchers. Ex.1020; Ex.1025.

Once at Thinkgeek.com, a person of ordinary skill in the art at the time of the alleged invention ("POSITA") could and would have navigated to "geek

toys” and from there to “Science Toys” to find the Spitballs listing (*id.*, 6). Ex.1007; Ex.1008; Ex.1003, ¶64.

The page contained an image of the Spitballs packaging image and text which is available by clicking the blank image. Ex.1007; Ex.1003, ¶65. A POSITA would recognize the box contains an image that is part of the Spitballs listing by virtue of the “Zoom” icon beneath the image and the image icon in the upper left corner, and “Additional Images.” Ex.1007; Ex.1003, ¶65. Both captures are from November 27, 2009, showing these materials were published together. Ex.1007. The Spitballs listing and associated image are a single publication under §102(a). 3 Annotated Patent Digest §17:24; *Kyocera Wireless Corp. v. International Trade Com’n*, 545 F.3d 1340, 1350-51 (Fed. Cir. 2008). These pages are a single publication as a collection of pages (a post and its corresponding photo) from the same article. To the extent Patent Owner argues these are not a single reference, it would be obvious to combine them because the Spitballs packaging image describes the same product and is directly accessible within the Spitballs description page and they function as a single listing—a POSITA would look to both the packaging of the product and the textual description to understand the full scope of the disclosure and would apply the teachings from both. Ex.1003, ¶65.

- **Japanese Patent Publication JP 2006-234191 (“Nagayoshi”)** published September 7, 2006 is prior art under §§ 102(a), (b). Ex.1009.

C. Relief Requested

Petitioner requests cancellation of the Challenged Claims as unpatentable. The specific grounds of the challenge are set forth below and supported by the declarations of Drs. Amanda Bligh (Ex.1003) and Robert Wanat (Ex.1005).

Ground	Basis	Claims	Reference(s)
1	§102	1-3, 10-11, 13	Spitballs
2	§103	1-12, 14	Nagayoshi, Spitballs

VI. THE '683 PATENT AND PROSECUTION HISTORY

The '683 Patent relates to “soft-projectile launching devices” for “super absorbent polymer projectiles.” Ex.1001, 1:12-16. The '683 Patent recognizes projectile launching devices were well-known and included “a variety of different types of launching toys,” including Nerf “blasters.” *Id.*, 1:20-30. The '683 Patent also recognizes that other toy projectile launchers, like paint ball and airsoft guns, were well-known “small projectile systems for gaming and professional training purposes.” *Id.*, 1:63-67.

The '683 Patent is not directed to any particular type of launcher. It discloses “launching devices, such as toys, amateur guns and weaponry,” and states “projection device 10 can be a bow, crossbow, sling shot, hand gun, machine gun, futuristic weapon, catapult, or shaped as any other type of weaponry,” and the “firing

mechanism may be based on any of the known ways of firing or launching projectiles or ammunition from a projection device.” *Id.*, 3:54-57, 5:3-17, 5:23-26.

The ’683 Patent indicates “[s]uper absorbent polymers (SAPs) were first invented” in the 1960s and are commonly used in personal disposable hygiene products such as diapers, protective underwear, and sanitary napkins” and “are polymers that can absorb an extremely large amount of liquid relative to their own mass.” *Id.*, 1:46-53. Applicant did not inform the PTO that spherical, hydrated SAPs were used as toy projectiles prior to the alleged invention.

The application leading to the ’683 Patent was a divisional application from the application that issued as the ’282 Patent. During prosecution, no Office Actions issued addressing prior art. Ex.1002. During prosecution of the application leading to the ’683 Patent, the Examiner, without explanation, made an amendment to claim 1 to add “substantially spherical.” Ex.1002, 63. Applicant did not disclose Spitballs or Nagayoshi during prosecution.

VII. PERSON OF ORDINARY SKILL IN THE ART

A POSITA would be someone who (i) had a Bachelor’s degree in Industrial Design or Mechanical Engineering or (ii) a toy designer with at least five years’ experience designing toys (including launchers), with both of (i) and (ii) having

access to a chemist knowledgeable regarding super absorbent polymers.³ Ex.1003, ¶¶38-43.

VIII. CLAIM CONSTRUCTION

A. “super absorbent polymer”

In the ITC Case, Patent Owner proposed “super absorbent polymer” be construed as a “polymer that can absorb an extremely large amount of liquid relative to its own mass.” Ex.1038. Patent Owner later argued that this construction means a “polymer that can absorb 10 times its weight in water.”

Petitioners proposed that “super absorbent polymer” requires “a polymer that can absorb at least 100 times its mass in water,” which is supported by the specification. Ex.1001, 3:46-51 (SAPs “were first invented by the United States Department of Agriculture (USDA) in the 1960s and are commonly used in personal disposable hygiene products...*SAPs are polymers that can absorb an extremely large amount of liquid relative to their own mass.*”) (emphasis added),⁴ 4:67-5:2

³ In the ITC Case, Patent Owner proposed an alternative level of ordinary skill in the art. Patent Owner’s and Petitioners’ experts agreed in the ITC Case that using either Petitioners’ or Patent Owner’s proposed levels of ordinary skill would not impact their analyses.

⁴ All emphasis added unless otherwise indicated.

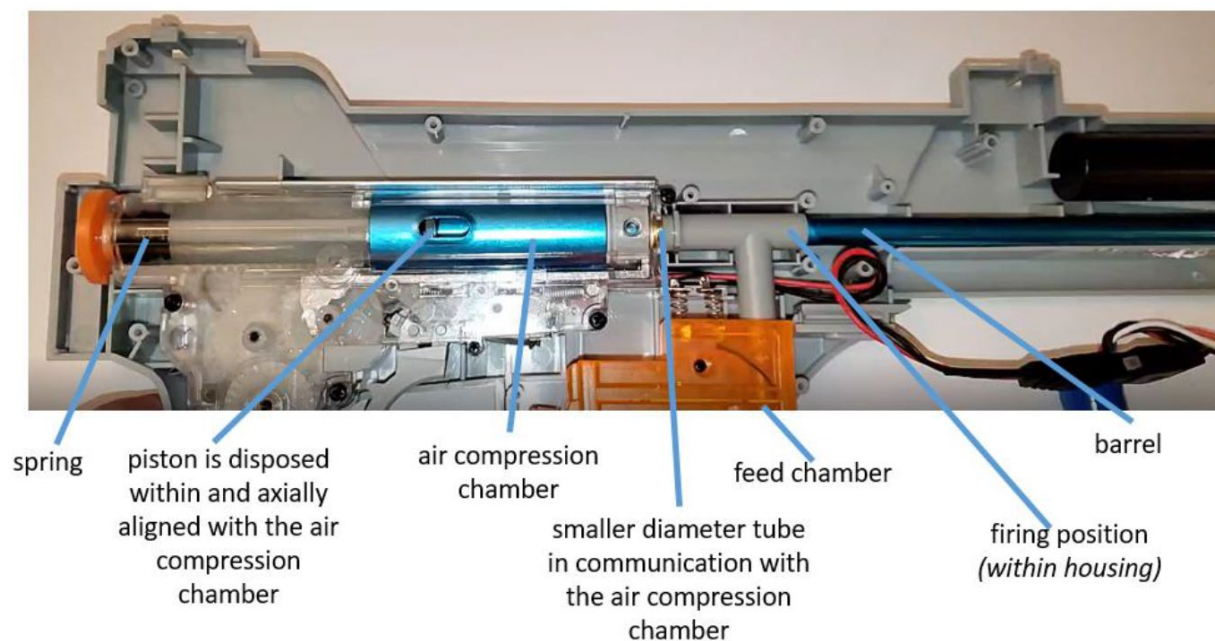
(“More preferably soft-projectiles made from a SAP are grown in distilled water, where they may absorb 500 times their weight.”); Ex.1005, ¶¶57-62. The extrinsic evidence confirms “super absorbent polymers” are commonly referred to as absorbing at least 100 times their weight in water. Ex.1040 (“SAP is insoluble in water but can absorb and retain from 100 to 1,000 times its own weight in water”); Ex.1018, 2 (SAPs are “capable of absorbing water around 100 times of their own weight”).

In contrast, Patent Owner’s late-disclosed interpretation of “10 times its weight in water” finds no support in the specification and relies solely on extrinsic evidence. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (noting extrinsic evidence “is less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’”); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (“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.”).

For purposes of this Petition, whether “super absorbent polymer” requires a polymer that can absorb “10 times” its dry mass in water or “100 times” its dry mass in water is irrelevant because Spitballs meets the limitation under both constructions.

B. “a firing mechanism that directly applies a force to a soft-projectile”

In the ITC case, Patent Owner argued that generation of air pressure by a spring and a piston to launch a projectile is a “direct” application of force of a firing mechanism to the projectile. Specifically, Patent Owner argues several alleged infringing products are “designed to use air pressure to launch the soft-projectiles,” that they use a spring, piston, and air compression chamber to generate the air pressure, and that these devices all “directly appl[y] a force to the soft-projectile ammunition” as depicted below:



SRB400 (SRB-PHYS_000001):



firing mechanism directly applies a force to the ammunition (*in housing*)

Ex.1070, 27-35; Ex.1003, ¶45. Solely for purposes of this IPR, Petitioners adopt Patent Owner’s interpretation that the application of air pressure generated by a spring, piston, and air compression chamber constitutes a “firing mechanism that directly applies a force to the soft-projectile.” Ex.1003, ¶45.

C. “magazine”

The ’683 Patent defines “magazine” as “any container that holds super absorbent polymer projectiles for a projectile toy gun or other projectile weaponry. The magazine could be of any shape size or Volume and have any number of openings as long as it holds Super absorbent polymer projectiles in a useable manner for a corresponding super absorbent polymer projectile launching device.” Ex.1001, 3:38-45. The Board should adopt this construction because the patentee acted as its own lexicographer. *Biogen MA Inc. v. EMD Serono, Inc.*, 976 F.3d 1326, 1335-36 (Fed. Cir. 2020); Ex.1003, ¶46.

IX. SCOPE AND CONTENT OF THE PRIOR ART

A. Spitballs

Spitballs are spherical projectiles that can be launched out of projectile launchers. The packaging below depicts hydrated spherical SAPs and shooting Spitballs through a tube. Ex.1003, ¶65.

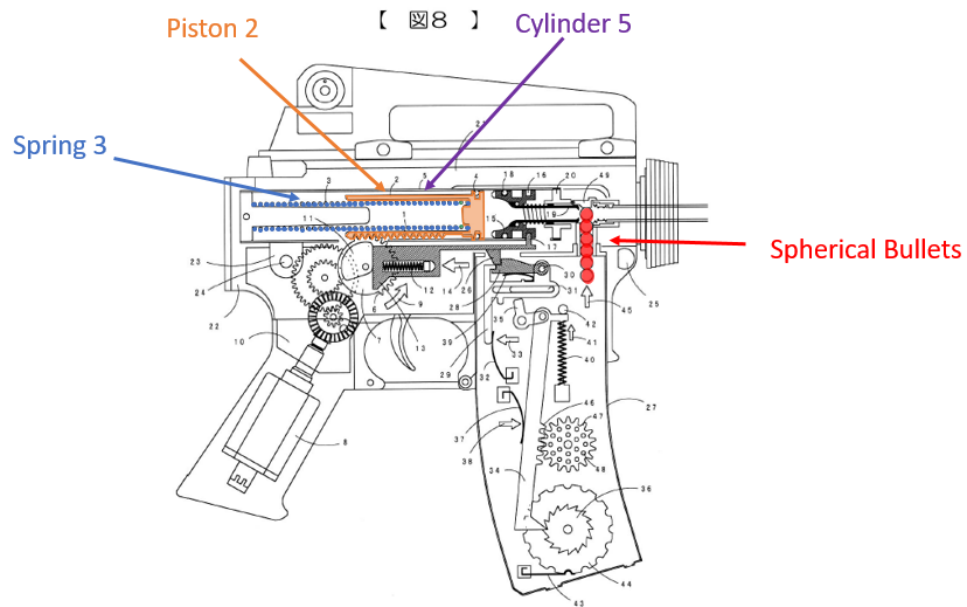


Ex.1007, 5.

Spitballs teaches “Grow em and chuck em,” resulting in “gobs of squishy stuff flying through the air,” and launching “spherical polymers at your friends and/or coworkers.” Ex.1007, 8; Ex.1003, ¶67. Spitballs “start off as small hard little spheres. Soak them in water for about 4 hours...and they will absorb water and grow up to 200 times their original size.” *Id.*

B. Nagayoshi

Nagayoshi discloses “a toy gun having a function for continuously shooting spherical bullets, a magazine [] attached to the toy gun, and the structure of dedicated parts used in the toy gun and magazine” and a “continuous bullet supply mechanism for continuously feeding spherical bullets” that “is provided inside the magazine.” Ex.1009, ¶0001. A POSITA would understand Nagayoshi is directed to an airsoft gun. Ex.1003 ¶70. In one embodiment, depicted in Figure 8 below, Nagayoshi uses a “spring 3” that “continuously presses” a “piston 2” located within an air compression chamber (“cylinder 5”) to launch “spherical bullet[s] 51.” *Id.*, ¶¶0030, 0040; *id.* ¶¶0030-0044, Figs. 8-10; Ex.1003, ¶¶71-72. When the gear rotates in the direction of “arrow 9,” the toothed portion of the gear engages the toothed portion connected to the piston, drawing the piston backwards. *Id.*

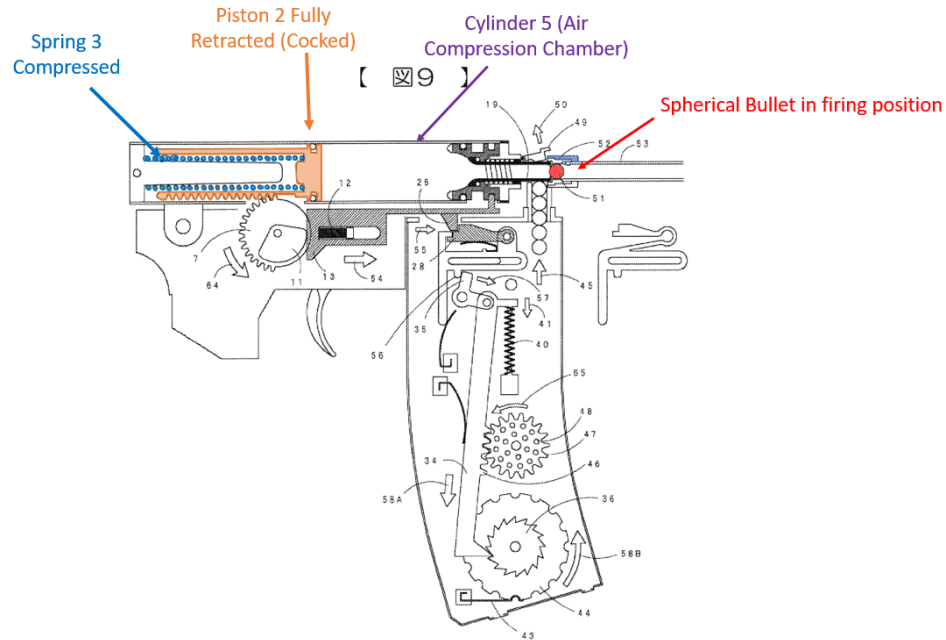


Ex.1009, Fig. 8;⁵ Ex.1003, ¶73.

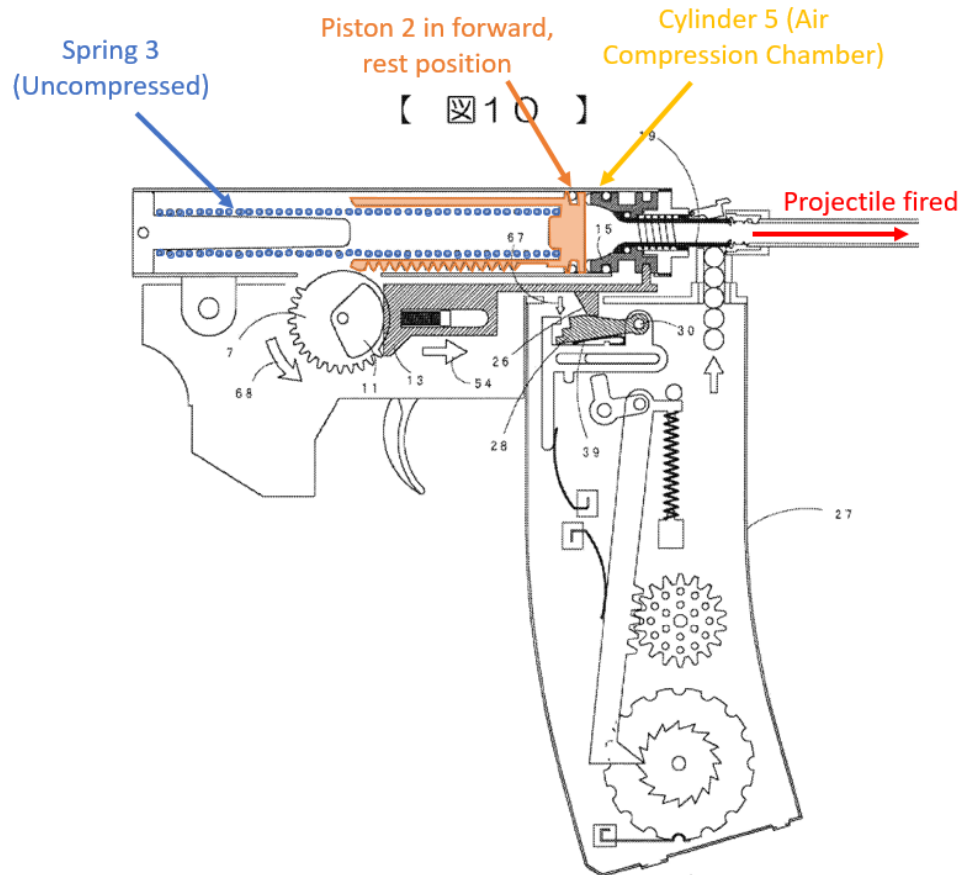
In Figure 9, the “piston 2” is fully retracted into a cocked position, with the “spring 3” compressed and the “spherical bullet 22” advanced forward by the nozzle.

Ex.1009, ¶¶0030, 0036, 0040.

⁵ All colored annotations added.



Ex.1009, FIG. 9; ; Ex.1003, ¶74. After the “spherical bullet 22” has been fired by air pressure, the “piston 2” is in a fully forward, rest position, and the “spring 3” is uncompressed—this depicts the “shooting completion state.” Ex.1009, ¶0039-0040.



Ex.1009, Fig. 10; Ex.1003, ¶75.

Patent Owner accuses launchers that use airsoft firing mechanisms of infringement in the ITC case, which confirms that airsoft guns like Nagayoshi and Peev disclose all of the “projectile launcher” limitations in the Challenged Claims.

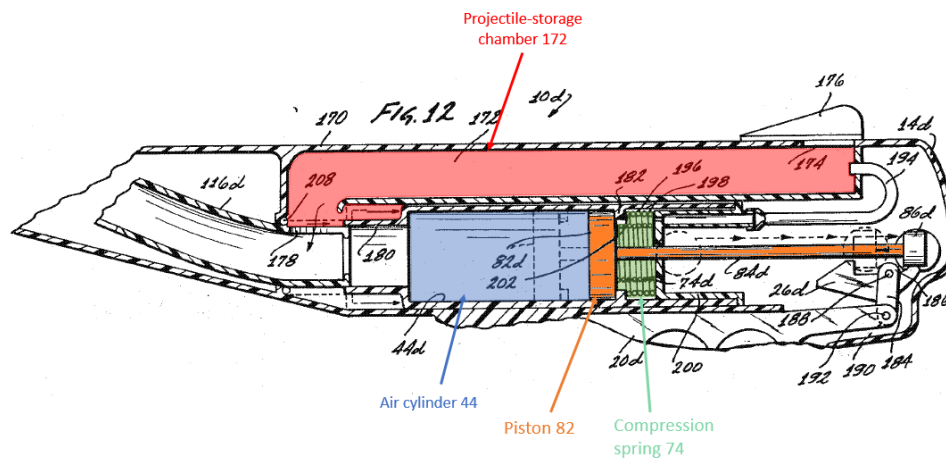
Ex.1070; Ex.1003, ¶77.

C. U.S. Patent No. 3,521,616 (“Meggs”)

Meggs issued July 28, 1970, is prior art under §§102(a), (b), (e). Meggs is directed to a “gun toy especially designed for firing low-density, light-weight projectiles.” Ex.1010, 1:53-55; Ex.1003, ¶79. Meggs notes that “[p]rojectile-firing

gun toys are known,” but “have the disadvantage that the projectiles usually have sufficient mass and density to be painful to a child when struck by a projectile fired from such a gun toy.” Ex.1010, 1:32-35; Ex.1003, ¶79. “Projectile 115” has “the shape of an oblate sphere and is preferably made from a low-density material such as sponge rubber or the like to minimize the likelihood of a child being injured by gun toy 10.” Ex.1010, 3:37-41; Ex.1003 ¶79.

In one embodiment, shown in Figures 12-13, “a gun toy 10d includes a pistol grip 12d, a trigger housing 14d, [and] a gun barrel 116d.” Ex.1010, 5:7-9, Ex.1003, ¶80. “Gun toy 10d also includes a housing 170 provided with a projectile-storage chamber 172 into which a plurality of projectiles 114 may be loaded through an aperture 174 provided in housing 170 beneath a slideable gate 176.” Ex.1010, 5:10-14; Ex.1003, ¶80.



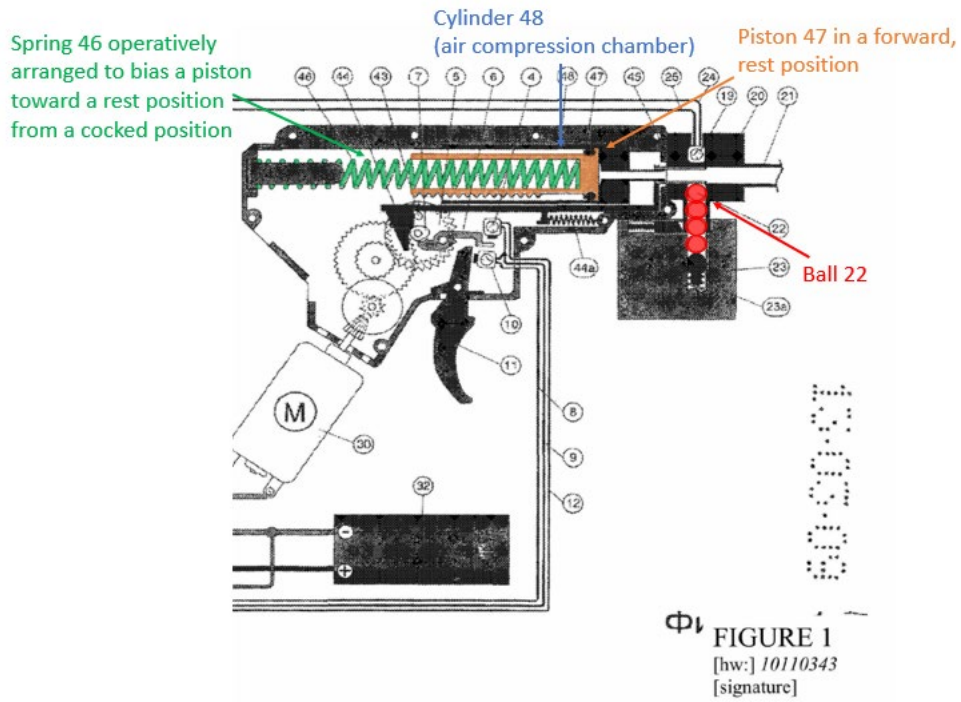
Ex.1010, Fig. 12.

Meggs discloses “[p]rojectiles 114 may be caused to drop into barrel 116d through an aperture 178 provided therein by sliding air cylinder 44d rearwardly to the position shown in Fig. 12 moving a sleeve 180 away from aperture 178. Cylinder 44d may be moved to its Fig. 12 position by moving a cocking-lever 16d rearwardly. Cocking-lever 16d is connected to a piston rod 84d which carries a piston 82d biased ... by a compression spring 74d.” *Id.*, 5:7-19; Ex.1003, ¶81. The “[g]un toy 10d [can] be fired by squeezing trigger 20d releasing piston 82d so that it will pressurize gun barrel 116d forcing projectile 114” to launch. Ex.1010, 5:45-47; Ex.1003, ¶81.

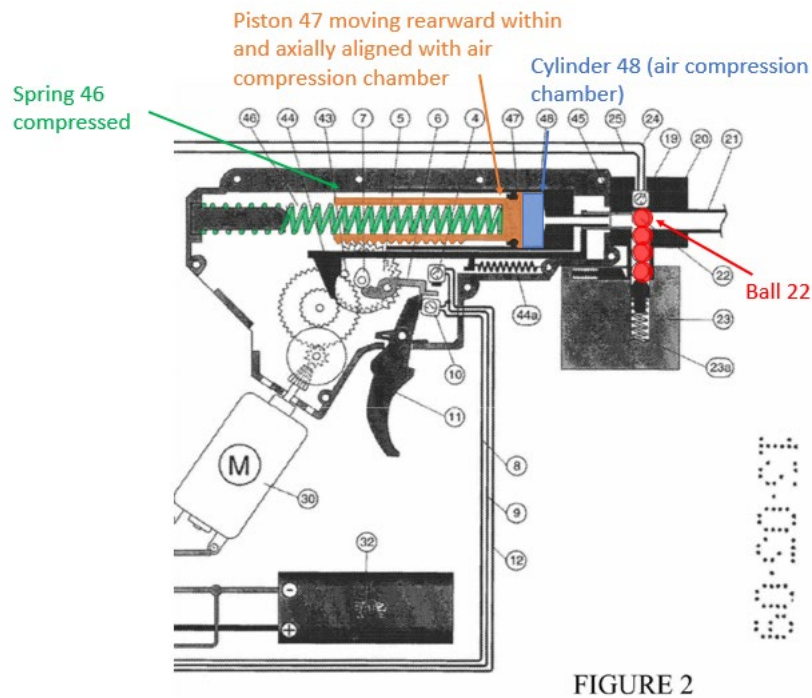
D. Peev

Peev describes well-known “[e]lectric airsoft gun[]” technology. Ex.1011, 23; Ex.1003, ¶82. Peev teaches that electric airsoft guns commonly fire “polymer balls with a diameter of 6 mm” using “compressed air,” which is a standard-sized airsoft ammunition well known to POSITAs. *Id.* Like Nagayoshi, Peev discloses a spring-piston arrangement (“spring 46” and “piston 47”) within an air compression chamber (“cylinder 48”), where the spring is drawn back by motor-driven gears and released, compressing air from the air compression chamber into a smaller diameter tube to launch the spherical polymer balls 22 ammunition.

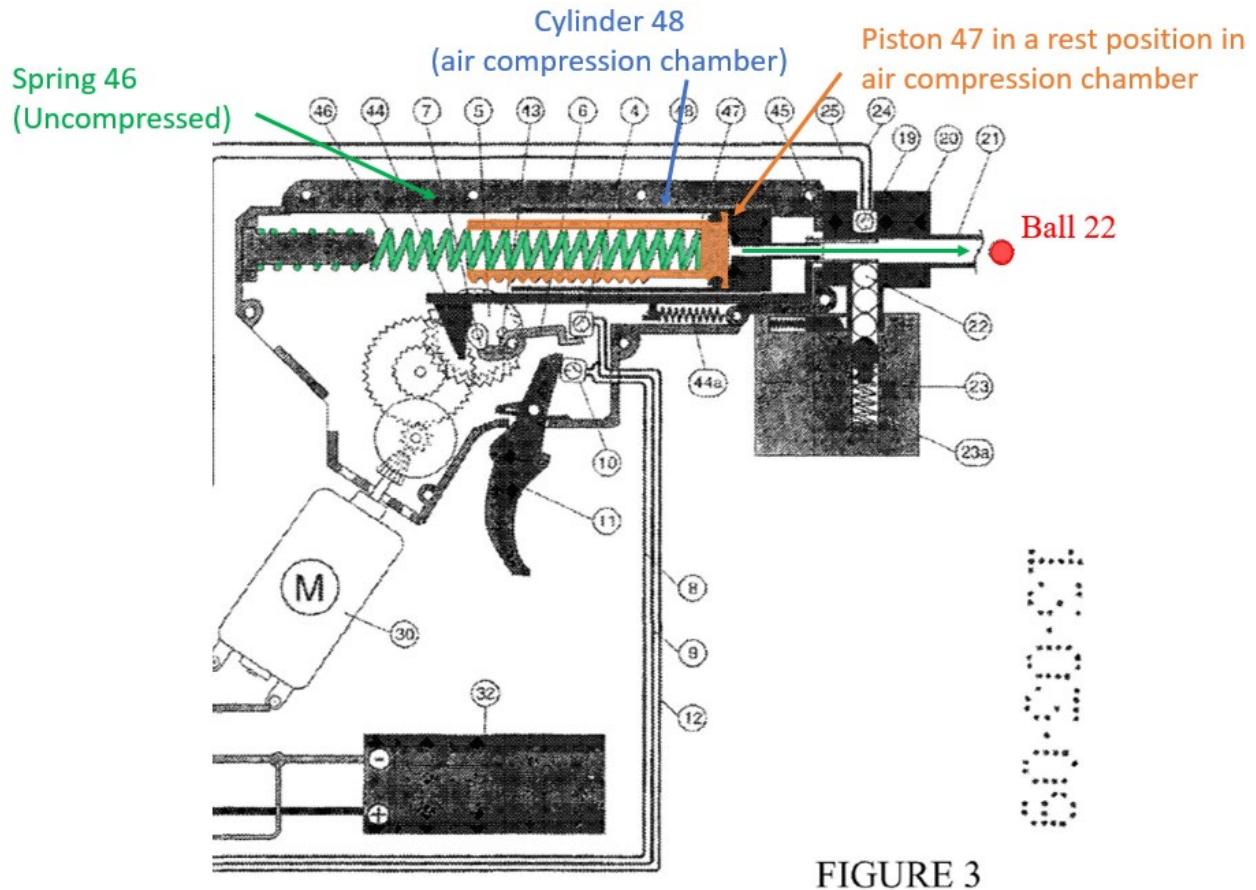
Ex.1011, 23-24, 29, 31-32; Ex.1003, ¶83.



Ex.1011, Fig. 1.



Id., Fig. 2.

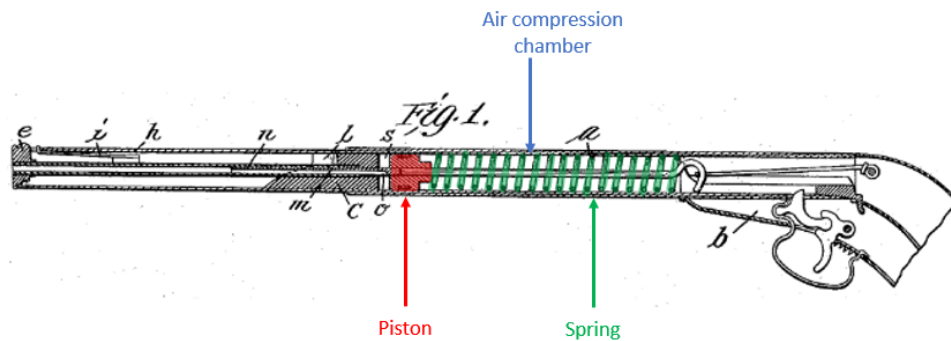


Id., Fig. 3.

E. U.S. Patent No. 683,431 (“Bennett”)

Bennett issued in 1901 and is prior art under §§102(a), (b), and (e). Bennett describes a “gun” with “an air-compression chamber [] formed at the rear of the true barrel, in which a spring-pressed plunger works, which is operated substantially as disclosed in Patent No. 408,971 [(“Hamilton”)].” Ex.1013, 1:13-20, Fig. 1; Ex.1003, ¶84. As shown in Figure 1, the piston is disposed within and axially aligned with the air compression chamber, and the “spring a” is operatively arranged to bias the piston toward a rest position from a cocked position within the air

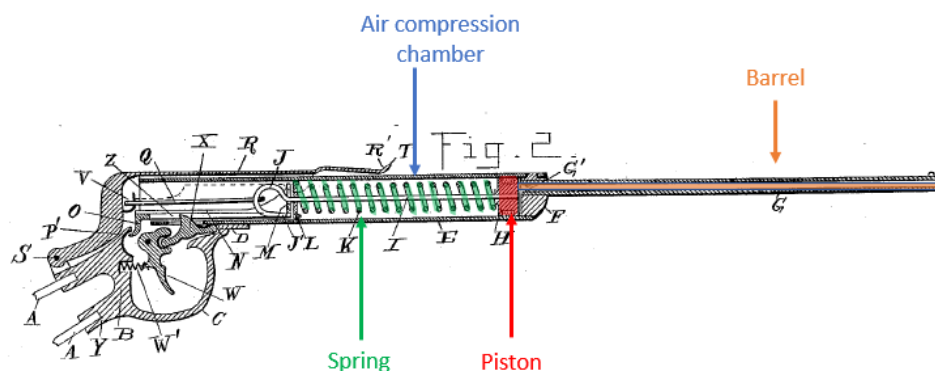
compression chamber. *Id.* When the spring drives the piston forward from a cocked position to a rest position, air is forced from the air compression chamber into the smaller diameter barrel and launches a projectile. *Id.*



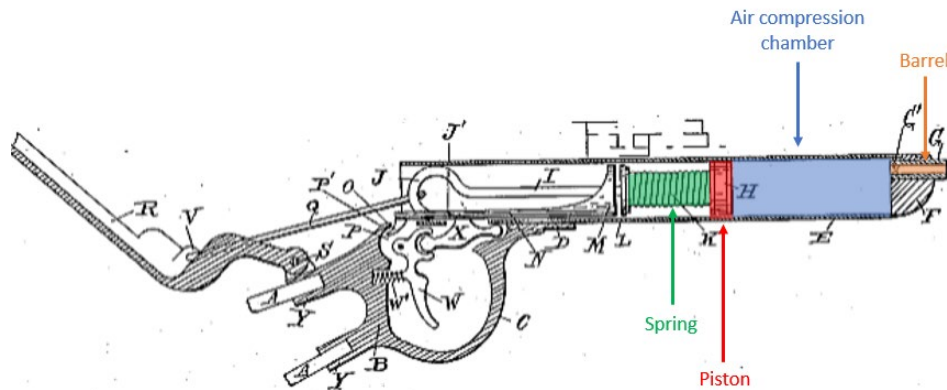
Ex.1013, Fig. 1.

F. U.S. Patent No. 408,971 (“Hamilton”)

Hamilton issued in 1889 and is prior art under §§102(a), (b), (e). Ex.1014; Ex.1003, ¶85. Hamilton describes a projectile launcher that launches projectiles using “coil-spring K” and a “piston H” located within an air compression chamber that is in communication with the smaller-diameter “true barrel G,” shown in Figures 2 and 3. *Id.*



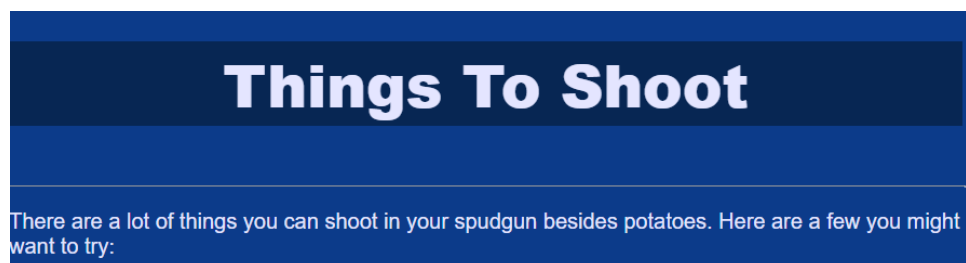
Ex.1014, Fig. 2.



Id., Fig. 3.

G. “Spudgun” Webpage (“Spudgun”)

Internet Archive captured a spudgun enthusiast webpage that was publicly available by April 20, 2008 and is prior art under §§102(a), (b). The Spudgun webpage explains that its purpose is “to provide a resource for spudgun makers and designers, and those who would like to build their first spudgun.” Ex.1015; Ex.1003, ¶86. Clicking on “things to shoot” would lead a POSITA to a wide variety of categories of potential ammunition for the launcher, including hydrated SAPs retrieved from a diaper:



Wet Diaper

First find an un-used diaper and cut a hole in the middle of it. Shake out all of that fluffy stuff into a bowl, add a lot of water and the stuff soaks it up. Put this gel-like stuff in a small cup and drop it in your gun. Good to have fights with.

Ex.1015; Ex.1001, 3:37-44 (noting SAPs are “commonly used in ... diapers”); Ex.1005, ¶86.

X. GROUNDS FOR PETITION

A. Ground 1

Spitballs anticipates claims 1-3, 10, 11, and 13. Ex.1003, ¶¶88-109.

1. Claim 1

Spitballs anticipates claim 1. Ex.1003, ¶¶88-100. This Section is incorporated by reference in all dependent claims below.

a. “A projectile launching system comprising:”

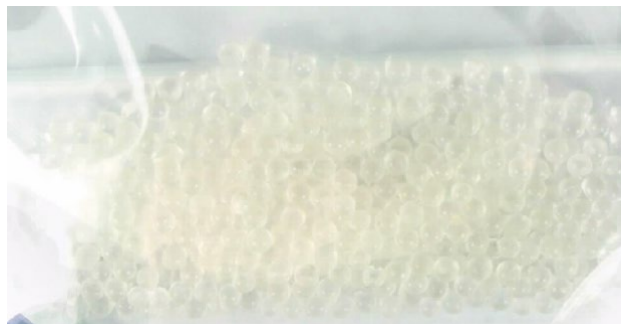
The preamble is not limiting because it does not provide antecedent basis for anything in the Challenged Claims. *Cochlear Bone Anchored Sols. AB v. Oticon Med. AB*, 958 F.3d 1348, 1355 (Fed. Cir. 2020) (finding preamble not limiting where it was “merely a statement of intended use”); *Shoes by Firebug LLC v. Stride Rite Children’s Grp., LLC*, 962 F.3d 1362, 1364-67 (Fed. Cir. 2020); *TQ Delta, LLC v. 2WIRE, Inc.*, 2018 WL 4062617 (D. Del. Aug. 24, 2018).

To the extent the preamble is limiting, Spitballs discloses a projectile launching system. Spitballs teaches projectiles (*e.g.*, hydrated SAP Spitballs) and a launcher (*e.g.*, blowgun) as described below in §§X.A.1.b and X.A.1.c. Ex.1003, ¶88-92.

b. “a plurality of substantially spherical soft-projectiles formed from hydrated super absorbent polymer”

Spitballs discloses a plurality of substantially spherical soft-projectiles formed from hydrated super absorbent polymer. Ex.1003 ¶¶93-97.

Spitballs disclose a plurality of substantially spherical projectiles. Ex.1007 (“Spitballs are awesome *spherical* polymers.”); Ex.1003 ¶94. Spitballs’ packaging depicts a plurality of dehydrated Spitballs in a bag and a plurality of hydrated Spitballs in the bottom-left corner, showing they are a plurality of small, substantially spherical beads both when dehydrated and when hydrated. Ex.1007; Ex.1003 ¶94.



Ex.1007. Spitballs’ webpage further shows images of a plurality of hydrated Spitballs that are all substantially spherical.



Ex.1007.

Spitballs also teaches soft-projectiles. Ex.1007 (“*Spitballs* start off as small hard little spheres. Soak them in water for about 4 hours ... and they will absorb water and grow up to 200 times their original size.”); Ex.1003, ¶95. After soaking in water, the Spitballs become “slimy and squishy,” and “[i]f you throw them gently, they will bounce” or “[i]f you throw them hard enough, they will explode into mushy pieces.” Ex.1007. A POSITA would have understood that a “slimy and squishy” sphere that bounces and can “explode[]” when it hits a target is a “soft-projectile.” Ex.1003, ¶95. A POSITA would have understood the “squishy” nature of the projectile that can “explode” on impact reduces the force of the impact and makes it softer than, *e.g.*, a hard plastic projectile. Ex.1003, ¶95. Further, Spitballs are “soft-projectiles” by virtue of being hydrated SAPs that absorbed 100x or more their weight in water. Ex.1005 ¶¶74-78.

Spitballs discloses that the soft-projectiles are formed from hydrated super absorbent polymer. Spitballs are “spherical *polymers*.” Ex.1007; Ex.1003 ¶96.

Spitballs discloses this limitation under Petitioners’ and Patent Owner’s proposed constructions of the term “super absorbent polymer” because Spitballs can “Grow[] 200x Their Size!” when hydrated. Ex.1007; *see also* Ex.1007, 8 (when soaked “in water for about 4 hours...,” they “will absorb water and grow up to 200 times their original size.”). Ex.1003, ¶96; Ex.1005, ¶77.

Growing “200 times” its size far exceeds the 100 times proposed in Petitioners’ construction, and is an order of magnitude larger than Patent Owner’s construction of “10 times.” Ex.1003, ¶96. Whether the reference to “200 times their original size” refers to 200 times the *volume* or 200 times the *mass* is irrelevant, because if the Spitballs grow “200 times” in *volume*, that is an increase of 138 times the mass. Ex.1005, ¶¶75-77.

The description of Spitballs further confirms they have well-known properties associated with SAPs. Ex.1003, ¶97. Spitballs deform under pressure (*i.e.*, are “squishy”) yet retain their shape without losing water when compressed (*i.e.*, are “squishy” and “bounce”). Ex.1007, 8; Ex.1003, ¶97. Further, Spitballs break apart (“explode”) under sufficient pressure. Ex.1007, 8; Ex.1005, ¶¶45-50.

c. “a projectile launcher for launching the ammunition in free flight”

Spitballs discloses a projectile launcher for launching the ammunition in free flight. Spitballs’ packaging depicts a person launching a Spitball using a tube-shaped projectile launcher. Ex.1003, ¶¶98-100.



Ex.1007. The person’s eyes are at the top of the image, the hand is behind the text “balls,” and the tube extends through the middle of the package containing the dry Spitballs. This image teaches a POSITA that Spitballs are ammunition for use with an air-pressure-powered projectile launcher (*e.g.*, a blow gun/tube). Ex.1003, ¶98.

The name “Spitballs” further teaches using the ammunition with a projectile launcher (*e.g.*, a blow gun/tube), and invokes the concept of launching the SAPs. Ex.1003, ¶99; Ex.1035 (defining “spitball” as “a piece of paper that has been chewed and shaped into a ball for *use as a missile*”); Ex.1036 (defining “spitball” as “[p]aper chewed and shaped into a lump *for use as a projectile*”).

Spitballs’ webpage discloses several ways to launch them, including being “flung,” used for “war,” and “throw[n],” and that Spitballs “[w]ill bounce and/or

explode into mushy parts on impact (depending on the force you throw them).” Ex.1007; Ex.1003, ¶91. A POSITA would have understood that Spitballs are configured for use with an air-powered launcher because they either “bounce and/or explode [] on impact” depending on how hard they are launched, and thus can withstand force associated with bouncing without breaking apart. Ex.1003, ¶¶91, 100.

2. Claim 2: “The system of claim 1, further comprising a sealed container for storage of the ammunition.”

Spitballs discloses a sealed container for storage of the ammunition. The Spitballs packaging includes a sealed, zip-lock style bag that contains the ammunition:



Ex.1007, 5; Ex.1003, ¶101.

3. Claim 3: “The system of claim 1, wherein the projectile launcher is a toy.”

Spitballs discloses the projectile launcher is a toy. Ex.1003, ¶102.

Spitballs emphasizes that it is “fun” and “awesome.” Ex.1007; Ex.1003, ¶102. Spitballs are for “Ages: 3 and up.” Ex.1007; Ex.1003, ¶102. And the packaging includes a cartoon image of a person launching the Spitballs, indicating Spitball launching is a toy:



Ex.1007; Ex.1003, ¶102.

4. Claim 10: “The system of claim 1, wherein the super absorbent polymer has a cross linking density sufficient to prevent the soft-projectiles from breaking apart when launched from the projectile launcher.”

Patent Owner contends this limitation is met if the projectile does not break apart when launched. Ex.1070, 26 (“The cross linking density is sufficient to prevent the soft-projectiles from breaking apart when launched from the projectile launcher, in that the plurality of soft-projectiles do not break apart when launched from the projectile launcher.”); Ex.1003, ¶103-106.

Spitballs discloses that “the super absorbent polymer has a crosslinking density sufficient to prevent the soft-projectiles from breaking apart when launched from the projectile launcher.” Ex.1003, ¶¶103-106. Spitballs can withstand compressive forces, such as bouncing. Ex.1007 (“If you throw them gently, they will bounce”; “Will bounce ... on impact.”); Ex.1003, ¶105. Spitballs discloses they can “explode ... *on impact*” and are shown being launched from a tube. Ex.1007. Because Spitballs can withstand compressive forces associated with bouncing, can fly through the air, and explode *on impact*, a POSITA would understand that Spitballs will not break apart when launched. Ex.1003, ¶105. Thus, Spitballs discloses the crosslinking density is sufficient to prevent the soft-projectiles from breaking apart when launched. *Id.* ¶105.

Even if not explicitly taught, a POSITA would have found it obvious in view of Spitballs and the knowledge of a POSITA to design a hydrated SAP ammo that does not break apart when launched from a projectile launcher. Ex.1003, ¶106. Because Spitballs can “bounce,” a POSITA would have understood they can

withstand force (*e.g.*, air-pressure launching forces). *Id.* A POSITA would have understood if a hydrated SAP broke apart when launched, routine modifications should be made to the hydrated SAP and/or the projectile launcher to prevent the projectile from breaking apart. Ex.1003, ¶106; Ex.1005, ¶¶45-50, 84-85. For example, in order to prevent the projectile from breaking apart, according to one approach, a POSITA would have adjusted the firing force of an air gun by using a lighter spring and/or reducing the difference in diameter between the air compression chamber and the barrel. Ex.1003, ¶106. Similarly, according to another approach, a POSITA would have designed hydrated SAPs to withstand greater compressive forces (*e.g.*, air pressure supplied during firing) by increasing the crosslinking of the polymer. Ex.1003, ¶106; Ex.1005, ¶¶45-50, 84-85; Ex.1054, 158-59, 174.

5. Claim 11: “The system of claim 1, wherein the projectile launcher is designed to use air pressure to launch the soft-projectiles.”

Spitballs discloses the projectile launcher is designed to use air pressure to launch the soft-projectiles. Ex.1003¶¶107. Spitballs depicts launching a Spitball using a projectile launcher powered by air pressure (*e.g.*, a blowgun):



Ex.1007; Ex.1003 ¶107. The name “Spitballs” likewise discloses launching using air pressure. Ex.1003, ¶107. §X.A.1.c

6. Claim 13: “The system of claim 1, wherein the projectile launcher comprises a firing mechanism that is incapable of storing energy independent of a user”

Spitballs discloses the projectile launcher comprises a firing mechanism that is incapable of storing energy independent of a user. Ex.1003 ¶¶108-109. Spitballs depicts launching a Spitball using a projectile launcher powered by air pressure (*e.g.*, a blowgun):



Ex.1007; Ex.1003, ¶109. The launcher does not store energy independent of the user; the energy is provided by the user (*e.g.*, blowing into the tube). Ex.1003, ¶109.

B. Ground 2

Nagayoshi in combination with Spitballs renders claims 1-12 and 14 obvious. Ex.1003, ¶¶110-187.

1. Motivation to Combine Nagayoshi and Spitballs

A POSITA would have been motivated to combine Nagayoshi with Spitballs. Ex.1003, ¶¶111-128. Nagayoshi and Spitballs are in the same field of endeavor. *Id.* ¶111; *Tyco Healthcare Grp. LP v. Ethicon Endo-Surgery, Inc.*, 774 F.3d 968, 978 (Fed. Cir. 2014) (finding motivation to combine where two references are “clearly within a common field of endeavor”). Nagayoshi teaches a “toy gun” for

“continuously shooting spherical bullets.” Ex.1009, ¶0001. Spitballs teaches spherical ammunition that can be launched. Ex.1007, 8; §X.A.

Motivation to combine is likewise found in the prior art and knowledge of a POSITA. *Nat’l Steel Car, Ltd. v. Canadian Pac. Ry., Ltd.*, 357 F.3d 1319, 1337-39 (Fed. Cir. 2004) (“It has long been the law that the motivation to combine need not be found in prior art references, but equally can be found ‘in the knowledge generally available to one of ordinary skill in the art.’”).

As discussed above in §X.A. Spitballs’ packaging depicts a person launching a hydrated SAP through a straw and teaches a person to launch, “fl[i]ng,” and “throw” Spitballs and use them in “war.” Ex.1007, 8. A POSITA would have understood that a tube, straw, or blow gun is a well-understood launching mechanism for a “spit ball.” Ex.1003, ¶112. Based on these teachings, a POSITA would have understood that Spitballs are projectiles that can be launched using air pressure. *Id.* A POSITA would have been motivated by Spitballs’ teachings, including the packaging’s depiction of launching Spitballs through a blow gun, to design an air-pressure-based launcher for Spitballs. Ex.1003, ¶112. Indeed, another Spitballs listing dated November 9, 2009 suggests to “launch a spit ball at an annoying coworker” and “shoot ‘em with ... Spit Balls.” Ex.1041, 1, 7.

It was well known in the art to launch hydrated SAPs using air pressure. Ex.1003, ¶¶112. *In re Breiner*, 468 F. App’x 989, 994 (Fed. Cir. 2012) (finding

motivation to combine in reference not asserted in obviousness combination). Steve Spangler and dozens of Science in the Rockies 2008 conference attendees launched the spherical, hydrated SAP Clear Spheres product (also called “Jelly Marbles”) from a blow gun using air pressure on July 10, 2008 in public, constituting prior invention under §§102(b) and (g)(2). Ex.1043 (disclosing “Shooting Jelly Marbles” and “Jelly Marble Blaster” to Be Amazing Toys, May 28, 2008); Ex.1044, 9, 12-15, 16-18, 24-26, 32-35, 37-39, 45-50; 83-84; 107-08; Ex.1045 (photos taken by conference attendee Ellen Peterson showing fragments of fired Jelly Marbles and Steve Spangler on stage at Science in the Rockies, July 10, 2008); Ex.1046; Ex.1047 (Internet Archive capture describing Clear Spheres as “sphere polymers” that are “made from a superabsorbent polymer that absorbs 300 times its weight in water,” March 8, 2009); Ex.1048 (Spangler blow guns).

A POSITA would have recognized that a launcher for these soft, squishy projectiles that could be used in “war” would be fun, but there were readily apparent drawbacks to using Spitballs with blow guns. For example, Spitballs teaches “don’t try to eat them.” Ex.1007, 8. Yet, blow guns have an opening (for blowing into) that could enable a hydrated SAP to enter the user’s mouth, creating a potential choking hazard. Ex.1003, ¶114. Similarly, a POSITA would have recognized that blowing into a tube to launch every projectile launch could be physically tiring, is limited based on the user’s breathing capacity, and can result in varied performance.

Id. Therefore, while a POSITA would have recognized that Spitballs can be launched from a tube as depicted on the packaging, they would have understood that doing so has safety and performance drawbacks. *Id.*

A POSITA would have recognized that an obvious choice for the design of a toy launcher is century-old air gun technology that, instead of using human lungs to generate air pressure, uses mechanical components (*e.g.*, spring, piston, and air compression chamber). Ex.1003, ¶115. Such air guns using springs, pistons, and air compression chambers to generate air pressure to launch a projectile were ubiquitous in the prior art and known for over a century. Exs.1009-11; Exs.1013-14; §§IX.B-IX.F; Ex.1003, ¶115. A POSITA would have known that air-pressure-based launchers are versatile and work with a wide array of ammunition, from heavy projectiles, like BBs, to “polymer balls” described in Peev (Ex.1011, 23), to “low-density, light-weight projectiles” taught in Meggs (Ex.1010, 1:53-55). Ex.1003, ¶115.

A POSITA would have recognized that an obvious choice for the design of a toy launcher is century-old air gun technology that, instead of using human lungs to generate air pressure, uses mechanical components (*e.g.*, spring, piston, and air compression chamber). Ex.1003, ¶116. Such air guns using springs, pistons, and air compression chambers to generate air pressure to launch a projectile were ubiquitous in the prior art and known for over a century. Exs.1009-11; Exs.1013-14;

§§IX.B-IX.F; Ex.1003, ¶116. A POSITA would have known that air-pressure-based launchers are versatile and work with a wide array of ammunition, from heavy projectiles, like BBs, to “polymer balls” described in Peev (Ex.1011, 23), to “low-density, light-weight projectiles” taught in Meggs (Ex.1010, 1:53-55). Ex.1003, ¶116.

A POSITA would have likewise recognized that safety risks and physical exertion drawbacks associated with launching a hydrated SAP through a tube/straw could have been easily solved by using a mechanical launcher that substitutes user-provided air pressure (*e.g.*, blowing into a tube) with mechanically generated air pressure (*e.g.*, air guns disclosed by Peev, Nagayoshi, Meggs). Ex.1003, ¶116. It was general knowledge to a POSITA that air guns (*e.g.*, air guns disclosed by Peev, Nagayoshi, Meggs) were available, and the benefits of these guns over blow guns would have been apparent to a POSITA. Ex.1003, ¶116. Those benefits include, *e.g.*, (1) the ability to launch the projectile with air pressure without blowing into a tube, thereby limiting physical exertion (*e.g.*, Nagayoshi’s “electric air gun” launches a projectile with air pressure (Ex.1009, Cls. 21-30, ¶¶0001, 0029-0044), (2) eliminating the risk that the Spitball could be drawn back into the user’s mouth from the tube, reducing the risk of accidentally swallowing or choking on Spitballs; and (3) the ability to use the widely-known advantages of mechanical projectile launchers, including improved aim and accuracy (by virtue of being able to look

down the barrel to line up a shot, Ex.1003, ¶116), being able to shoot farther distances, and the ability to hold a large number of projectiles and feed them into the launcher to launch multiple projectiles in rapid succession. Ex.1003, ¶116; Ex.1009, ¶0001 (“a toy gun having a continuous shooting function such as that continuously shoots hundreds of bullets with one trigger pull” with a “bullet supply mechanism for continuously feeding spherical bullets”). Similarly, Peev teaches that “[e]lectric airsoft guns... contain a body with a magazine and a barrel, in the rear part of which is located a mechanism for compressing the air and a means of controlling the fire, interacting with the trigger of the airsoft rifle,” and in particular, the electric air gun described in Peev has an “automatic fire” mode. Ex.1011, 32; Ex.1003, ¶116.

A POSITA would have understood that being able to launch many Spitballs in a short timeframe would increase the fun of launching Spitballs. Ex.1003, ¶117. For example, using a tube/blowgun as depicted on the Spitballs packaging would require the user to carry ammunition and load each round, which can interrupt the play of launching. *Id.* ¶117. Although a user can load more than one into the tube, in that circumstance, the user would shoot them all out at once, with one breath, and still reload for the next shot. *Id.*, ¶117. Because Spitballs are “slimy” and slippery, a user must have significant manual dexterity to get it into the tube, thereby increasing the chances that the ammo will bounce away and be lost. Ex.1007, 8;

Ex.1003, ¶117. Thus, a POSITA would look to well-known launchers that had the ability hold multiple SAP balls, had the ability to load them without requiring a human to use their fingers, and allowed them to be fired in sequence. Ex.1003, ¶117.

Additionally, using a human's power to launch means the device is limited to the lung capacity of the person launching it and each shot is inconsistent (depending on how out of breath a person might be and because it is difficult to blow the exact same amount each time). *Id.*, ¶118. A POSITA would have understood that mechanical launchers, like Nagayoshi, can provide a far more consistent level of air pressure and reliability. *Id.*, ¶118.

A POSITA would likewise be motivated to improve on prior art air guns, like Nagayoshi. A POSITA reviewing Nagayoshi, Peev, and similar air gun references would have been motivated to preserve the fun of airsoft play, while reducing injury risk with softer ammunition. *Id.*, ¶119. Before 2010, it was well-known to POSITAs that air guns were fun toys that children and adults can use to play. *Id.*, ¶119. Indeed, both Nagayoshi and Peev emphasize the toy/game aspect of air guns. For example, Peev states that “[e]lectric airsoft guns find application in the sporting gun industry and are used for military emulations or training, or *for fun when conducting airsoft games.*” Ex.1011, 23; Ex.1003, ¶119. Similarly, Nagayoshi states, “[t]he *present invention relates to a toy gun* having a function for continuously shooting spherical bullets...” and refers to the launcher as a “toy gun” throughout. Ex.1009, [0001],

Cls. 1-29; Ex.1003 ¶119. While Nagayoshi discloses “spherical bullets”, it does not specify or limit the type of material that may be used to form those “spherical bullets.” Ex.1003, ¶119.

However, it was also known to POSITAs that, while fun, air guns had the potential to cause injury due to the metal BB or plastic airsoft pellets typically used with such air guns. Ex.1003, ¶120. In the early 2000s, well before the February 2010 alleged invention date, multiple articles were published discussing potential safety concerns with air guns. For example, WebMD published a November 2004 article titled “BB, Pellet, Paintball Guns Dangerous to Kids: Experts Say Don’t Characterize Them as Toys.” Ex.1026. It states, “BB, paintball, and pellet guns can cause injuries and death, even though they’re not traditional firearms, according to the American Academy of Pediatrics (AAP).” *Id.* at 1. “In 2000, emergency rooms in the U.S. treated more than 21,000 injuries from air rifles and BB, paintball, and pellet guns, collectively called nonpowder guns. About a fourth of these were to the head and neck (excluding the eye); more than one in 10 injuries affected the eye.” *Id.*

As another example, Washington Post published an article in November, 2004, titled “Not Your Dad’s BB Gun.” Ex.1027. The article describes fun associated with air guns, *e.g.*, discussing that “Humorist Jean Shepherd’s ‘A Christmas Story,’ a short story and movie classic about growing up in the ‘40s, is

practically a boy's paean to BB guns.” *Id.*, at 2. However, the article recognizes that “[a]s indicated by the recent spate of BB gun sniping in Northern Virginia and the report this month from the American Academy of Pediatrics attributing about 21,000 injuries annually to BB guns and other air guns, America's Norman Rockwell-like nostalgia for the seemingly benign BB gun may be off target.” *Id.*, 1. While part of the discussion relates to more modern, adult-focused air guns, it also discusses air guns sold for kids, noting they are capable of “penetration in a human skin” at certain velocities, still are capable of “limited harm” at lower velocities, and can be “very harmful or lethal” at higher velocities. *Id.*, 2.

As another example, an August 2008 article titled “Airsoft Guns: A Double-Edged Sword” notes that airsoft guns can be dangerous: “There's also the dangers involved in fighting airsoft wars. The rounds are made of hard plastic and are sold in sizes up to .25 grams in diameter. Airsoft guns can shoot these rounds at velocities up to 450 feet per second (the legal limit). While this may not seem dangerous, it can be enough to crack the skin and cause minor bleeding.” Ex.1028, 2. The article, however, also recognizes that airsoft guns have “a lot of really fun aspect[s] to them,” despite the potential safety risks. *Id.*

As a result, a POSITA at the time of the invention would have recognized that while air guns were known to be fun, they came with the drawback of potentially causing injury. Ex.1003, ¶123. Therefore, a POSITA would have been motivated

to search for safer ammunition for toy air guns, like those taught by Nagayoshi, with the goal of reducing the risk of accident or injury while maintaining the fun and entertainment of air guns. *Id.*, ¶123.

A POSITA would have known that hydrated SAPs could be used as a softer ammunition in toy projectile launchers, including based on the teachings of Spitballs, Spudgun, and Steve Spangler’s Clear Spheres launcher invention and public use. Ex.1003, ¶124. Spitballs were marketed and used as spherical, hydrated-SAP projectiles that were launched using air pressure. Ex.1003, ¶124. Critically, unlike plastic airsoft ammunition and metal BBs, hydrated SAP projectiles are “squishy,” “bounc[y],” comprised mostly of water, and can “explode into mushy parts on impact,” meaning they are much softer and impart less impact force when fired at the same speed. Ex.1007, 8; Ex.1003, ¶124. A POSITA would likewise have been attracted by the customizability of Spitballs projectiles— “the longer they absorb water, the bigger they grow.” *Id.* A POSITA would have understood that the size of Spitballs—and any hydrated SAP projectile—was adjustable. Ex.1003, ¶124. Moreover, it was well-known prior to 2010 that the size of a fully hydrated SAP could be easily adjusted by soaking them in less water, or soaking them for less time, to make them smaller (e.g., 6 mm diameter, a standard air gun size (Ex.1011, 23 (“Electric airsoft guns [1] externally represent a copy of real firearms, but instead of cartridges, polymer balls with a diameter of 6 mm are fired by compressed air.”))).

Ex.1003, ¶124; Ex.1005 ¶83. Similarly, a POSITA would have known that the size of the projectile could be adjusted by adjusting the starting size of the dry bead, or increasing/decreasing the amount of crosslinking used, or soaking them in a saltier solution. Ex.1003, ¶124; Ex.1005, ¶83.

A POSITA would have understood that Spitballs were softer, gel-like projectiles that could be launched using air pressure. Ex.1003, ¶125. And using hydrated SAP ammunition, as taught by Spitballs, with a toy air gun (*e.g.*, as taught by Peev and Nagayoshi), would make air guns safer. Ex.1003, ¶125. A POSITA thus would have had a motivation to make the combination and a reasonable expectation of success in doing so. Ex.1003, ¶125; *Hoffmann-La Roche Inc. v. Apotex Inc.*, 748 F.3d 1326, 1331 (Fed. Cir. 2014).

It would have been obvious to try combining Nagayoshi's toy gun with Spitballs. Ex.1003, ¶¶126-127. There were a finite number of available ammunition options (*e.g.*, plastic, metal, foam, hydrated SAP), and hydrated SAPs, like Spitballs, offered well known benefits, including reducing the force of impact because they are soft and gel-like. *Id.* A POSITA would have had a reasonable expectation of success in doing so because both air guns and hydrated SAP projectiles are easily adjusted to arrive at the characteristics needed to make a successful launcher. *Id.* Hydrated SAP customizability is discussed above, and air guns could be adjusted to

fire harder or softer by adjusting the spring strength in the air compression chamber or the diameter of the air compression chamber compared to the nozzle/barrel. *Id.*

A POSITA would have recognized that combining air guns, such Nagayoshi's toy gun, with Spitballs' hydrated SAP projectiles, such as taught by Spitballs, is a simple substitution of one known element (spherical hydrated SAP soft-projectiles) for another known element (Nagayoshi's "spherical bullets") to obtain predictable results (a safer air gun that preserves the fun of the toy gun). *Id.*

Motivation to combine and reasonable expectation of success are further shown by the simultaneous inventions discussed in §X.C. Ex.1003 ¶128.

2. Claim 1:

Nagayoshi in combination with Spitballs renders obvious claim 1. Ex.1003 ¶¶129-130. This Section is incorporated by reference in all dependent claims below.

a. "A projectile launching system comprising:"

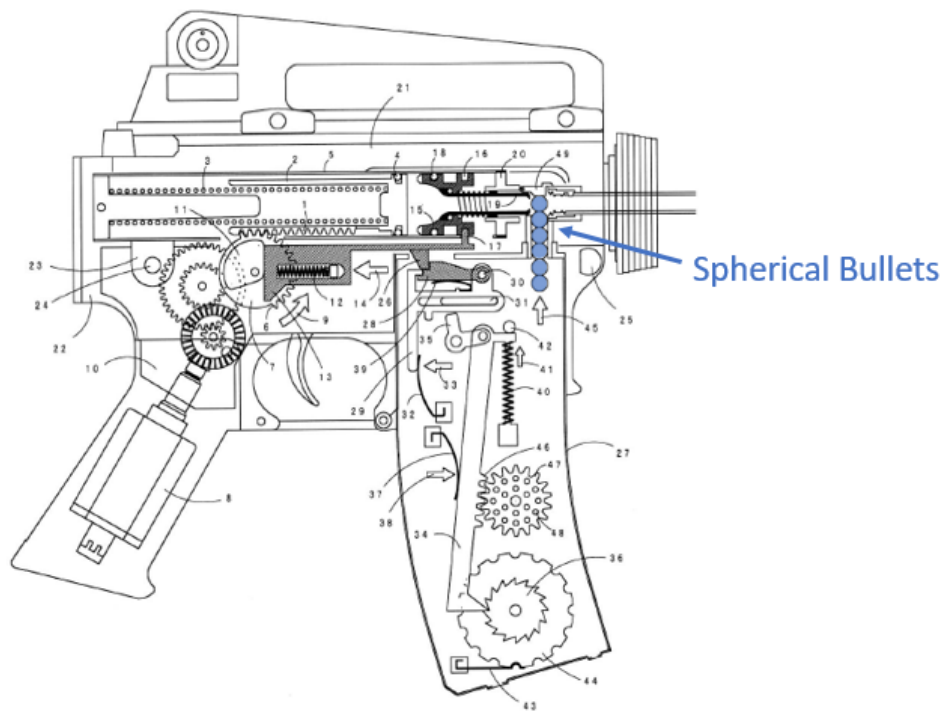
The preamble is not limiting. §X.A.1.a. To the extent the preamble is limiting, Nagayoshi in view of Spitballs renders obvious "a projectile launching system." Ex.1003, ¶129. Spitballs discloses a projectile launching system. §X.A.1.a; Ex.1003, ¶129. Nagayoshi likewise discloses a projectile launcher (a "toy gun") and ammunition ("spherical bullets") as described in §§X.B.2.b-X.B.2.c, below. Ex.1003 ¶130.

b. "a plurality of substantially spherical soft-projectiles formed from hydrated super absorbent polymer;"

Spitballs discloses this limitation. §X.A.1.b.

Nagayoshi in view of Spitballs renders obvious “a plurality of substantially spherical soft-projectiles formed from hydrated super absorbent polymer.” Ex.1003, ¶¶131-134. Nagayoshi discloses a plurality of “spherical bullets” (*i.e.*, projectiles). Ex.1009 ¶0001; Ex.1003, ¶132. For example, in Figure 8, Nagayoshi teaches the “spherical bullets” are driven upward to “ensure[s] the spherical bullets smoothly enter the sprocket...for feeding.” Ex.1009 ¶¶0033, 0035-37 (describing “spherical bullets”).

【 図8 】



Id., Fig. 8.

Moreover, Nagayoshi teaches that using differently shaped ammunition may lead to problems. For example, Figure 11 depicts an “abnormal spherical bullet 69” being sandwiched by the nozzle member 19, preventing it from advancing into the barrel. *Id.*, ¶0042. Nagayoshi further teaches that if the abnormal bullet is not removed, the nozzle tip of “nozzle member 19” may break, causing other parts of the invention of Nagayoshi to break. *Id.* A POSITA would have thus understood that using spherical projectiles with the same shape allows optimal operation of Nagayoshi’s toy gun. Ex.1003, ¶133.

A POSITA would have been motivated to use Spitballs’ plurality of substantially spherical hydrated SAP soft-projectiles in place of the spherical bullets described by Nagayoshi. *See* §X.B.1; Ex.1003, ¶134.

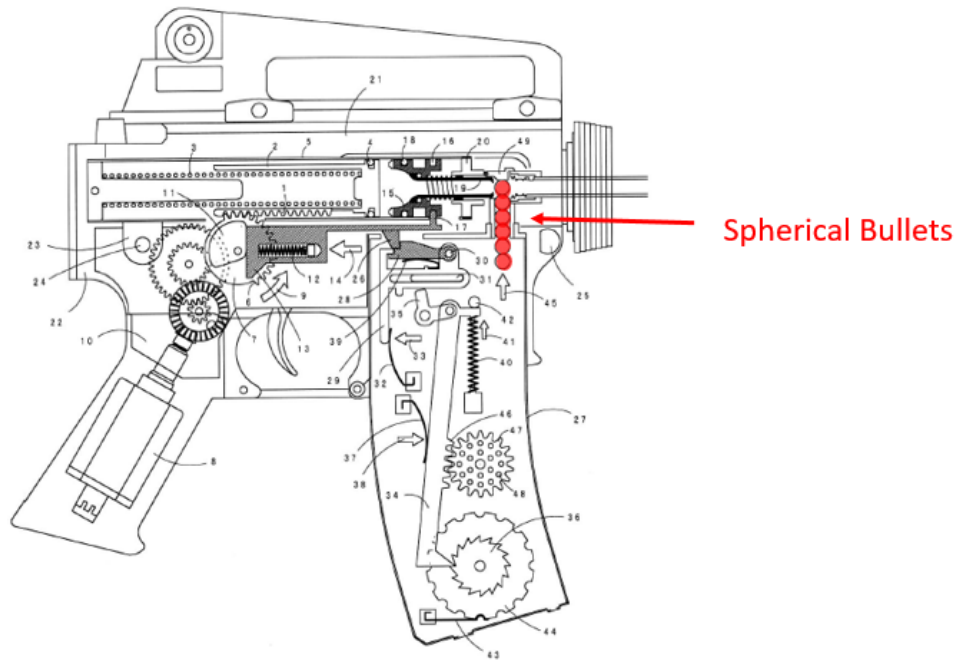
c. “a projectile launcher for launching the ammunition in free flight.”

Nagayoshi in view of Spitballs renders obvious “a projectile launcher for launching the ammunition in free flight.” Ex.1003, ¶¶135-138.

Spitballs discloses this limitation. §X.A.1.c; Ex.1003, ¶¶98-99.

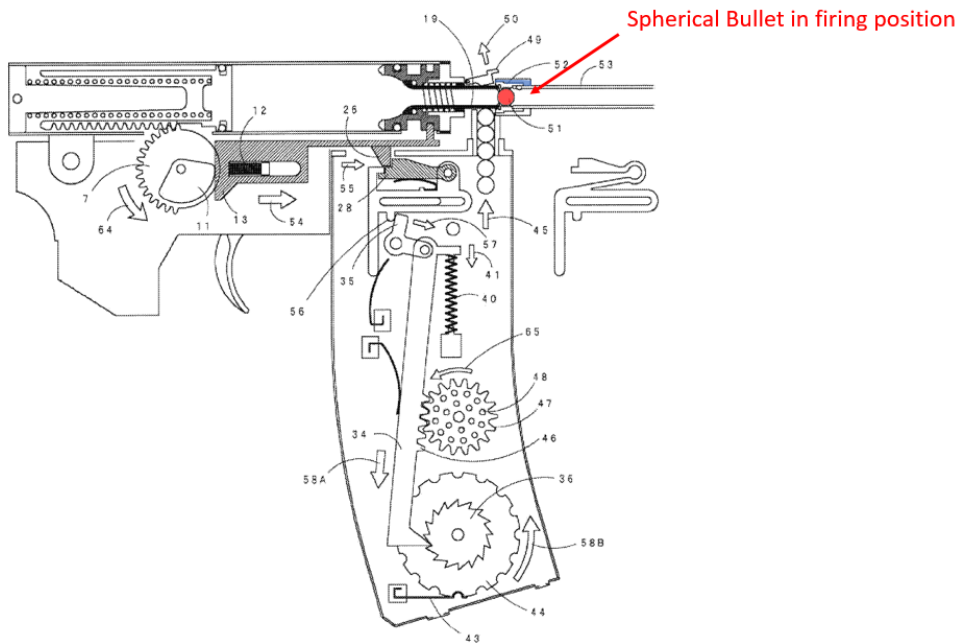
Nagayoshi discloses a “toy gun” (projectile launcher) for “continuously shooting *spherical bullets*.” Ex.1009, ¶0001; Ex.1003 ¶¶135-136. Nagayoshi depicts these spherical bullets configured for and launched from a gun (projectile launcher) in Figures 8-10:

【 図8 】

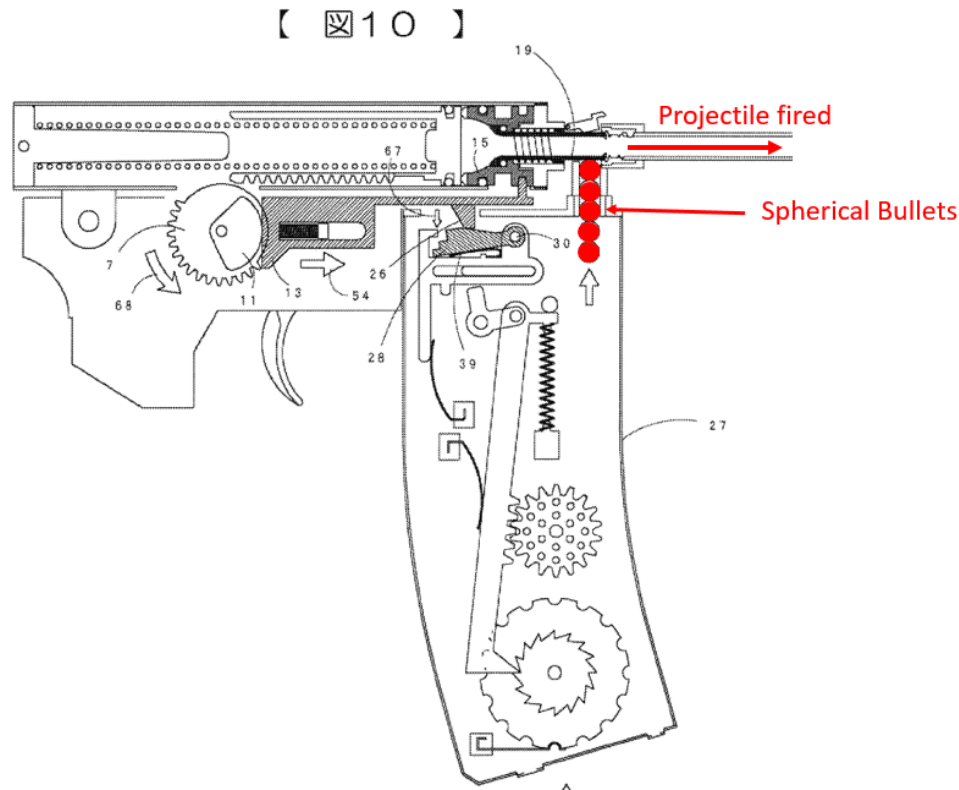


Ex.1009, Fig. 8.

【 図9 】



Id., Fig. 9.



Id., Fig. 10.

Nagayoshi discloses and claims an “electric air gun.” Ex.1009, Cls. 21-30; Ex.1003, ¶137. In Embodiment 1, Nagayoshi explains that “[a] spring 3 continuously presses a piston 2” and that packing 4 is provided on the front of piston 2 “*maintaining airtightness*” with cylinder 5. Ex.1009, ¶0030; Ex.1003, ¶137. Figure 9 depicts Nagayoshi’s toy gun when “rotary drive member 7” has continued turning and fully retracted “piston 2” with “airtight packing 4.” Ex.1009, ¶0036, Fig. 9; Ex.1003, ¶137:

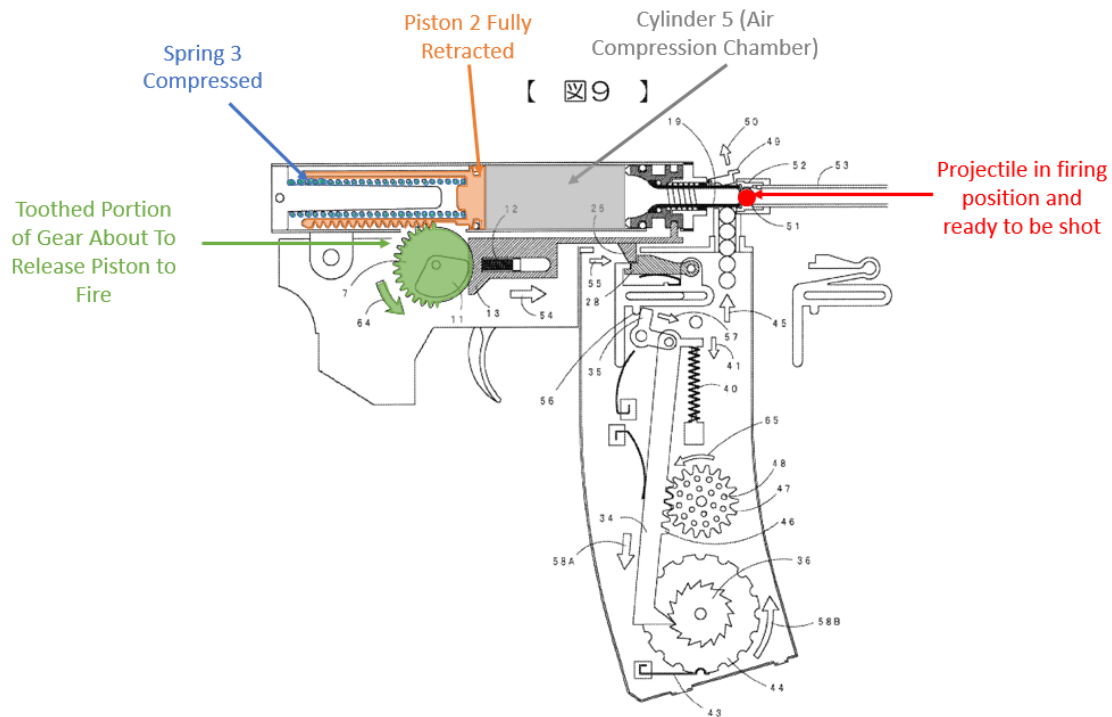
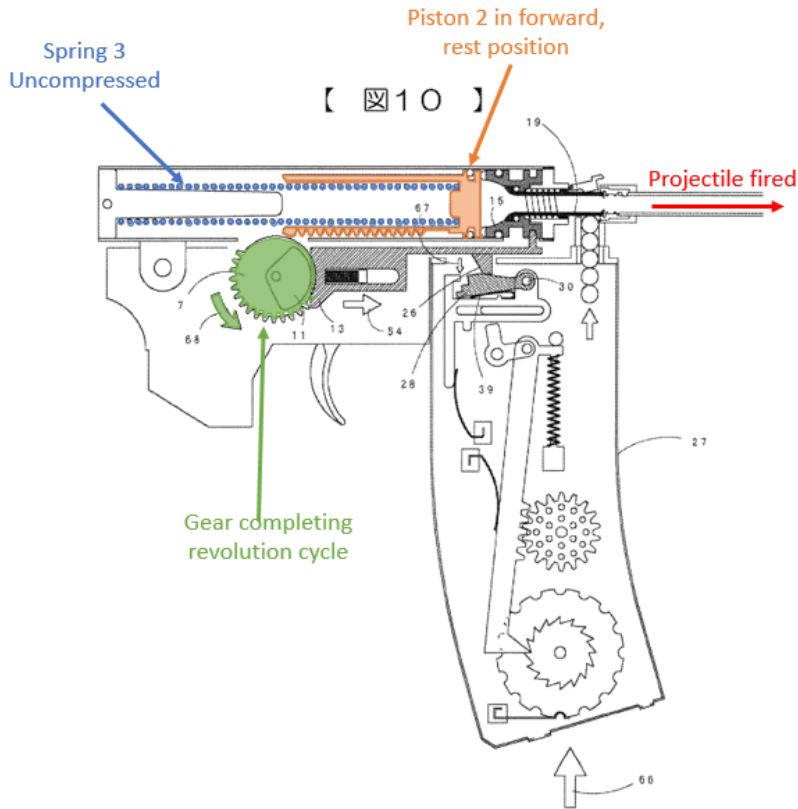


Figure 10 shows the “shooting completion state” where the gear releases the piston, the piston is driven forward, compressing air in the air compression chamber into the smaller diameter barrel with the “airtightness” between the piston and cylinder, and using that air pressure to launch the projectile in free flight. *Id.*, ¶0030, 0039, Fig. 10; Ex.1003, ¶138.



Ex.1009, Fig. 10.

A POSITA would have been motivated to use Spitballs' plurality of substantially spherical hydrated SAP soft-projectiles with Nagayoshi's projectile launcher. §X.B.1.

3. Claim 2: "The system of claim 1, further comprising a sealed container for storage of the ammunition."

Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious a sealed container for storage of ammunition. Ex.1003, ¶¶139-140.

Spitballs teaches a sealed container for storage of ammunition. §X.A.2; Ex.1003, ¶101. A POSITA would be motivated by the teachings of Spitballs to

include a sealed container for storage of ammunition with the combined system of Spitballs and Nagayoshi to enable easy storage of the hydrated Spitballs. *Id.*, ¶140. That is especially so because Spitballs teaches “they *slip, slide*, bounce & explode!” and that they are “slimy” and “mushy”. Ex.1007, 5, 8. A POSITA would therefore understand that unless there is a container for transporting the Spitballs, there is a risk that they would slip, slide, and bounce away during transport to the play area. Ex.1003, ¶140. This is particularly so because Nagayoshi teaches that it can fire a lot of bullets (“hundreds”) in rapid succession. Ex.1009, ¶[0001]; Ex.1003, ¶140. Further, Spitballs teaches “when the war is over, collect all the whole ones and let them dry out” and they can then “be reused at a later date.” Ex.1007, 8. It would be abundantly obvious to a POSITA to store the Spitballs to be “reused at a later date” in a sealed container to not lose them. Ex.1003, ¶140.

4. Claim 3: “The system of claim 1, wherein the projectile launcher is a toy.”

Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious “the projectile launcher is a toy.” Ex.1003, ¶¶141-143.

Spitballs discloses toy projectiles (Spitballs) with a toy projectile launcher (blowgun). §X.A.3.

Further, Nagayoshi discloses a toy projectile launcher. Nagayoshi states that “[t]he present invention relates to a *toy gun* having a function for continuously

shooting spherical bullets...” and refers to the launcher as “toy gun” throughout the patent. Ex.1009, ¶0001; *id.* ¶0031 (“Fig. 8 is a drawing for explaining the structure of an electric *toy gun*.”); Ex.1003, ¶143; *see generally* Ex.1009. Indeed, every claim of Nagayoshi is directed to a “toy gun.” Ex.1009, Cls. 1-39.

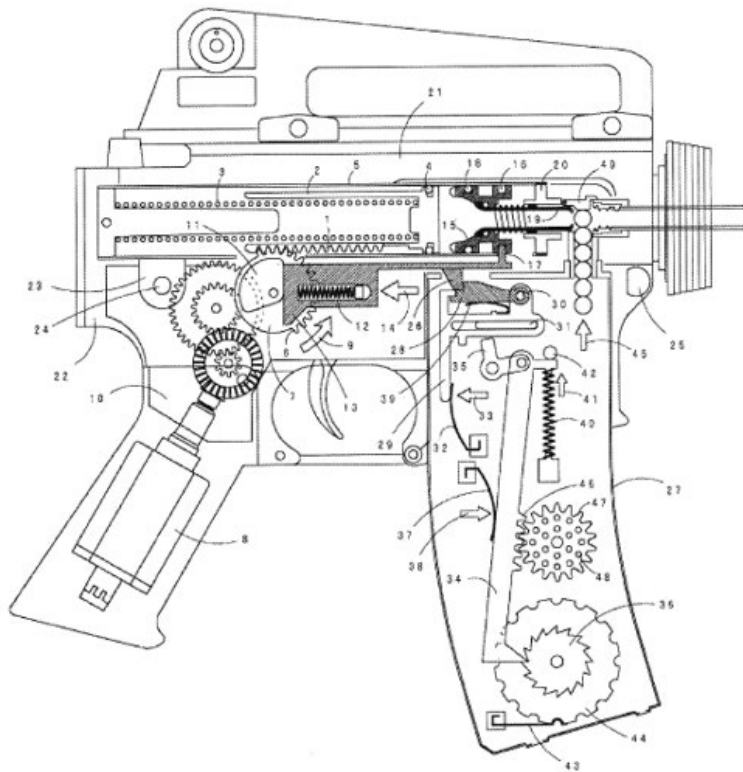
5. Claim 4: “The system of claim 1, wherein the projectile launcher is in the shape of a gun.”

Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious the projectile launcher is in the shape of a gun. Ex.1003, ¶145.

Nagayoshi discloses that the projectile launcher is in the shape of a gun. Ex.1003, ¶145. Nagayoshi describes “toy *gun* having a function for continuously shooting spherical bullets.” Ex.1009, ¶0001; *id.*, ¶0031 (“Fig. 8 is a drawing for explaining the structure of an electric toy *gun*”); *id.*, Cls. 1-39 (each claiming a “toy *gun*”); Ex.1003, ¶145. Figures 8-10 below depict a gun-shaped launcher. Ex.1003, ¶145.

Projectile launcher in the shape of a gun

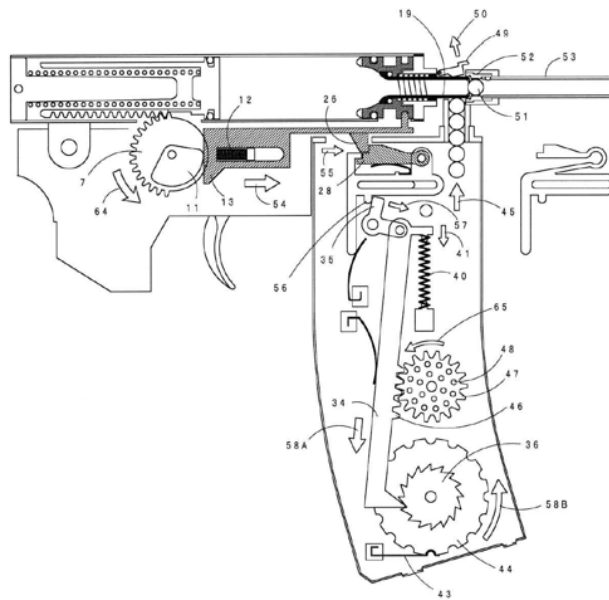
FIG. 8



Ex.1009, Fig. 8.

Projectile launcher in the shape of a gun

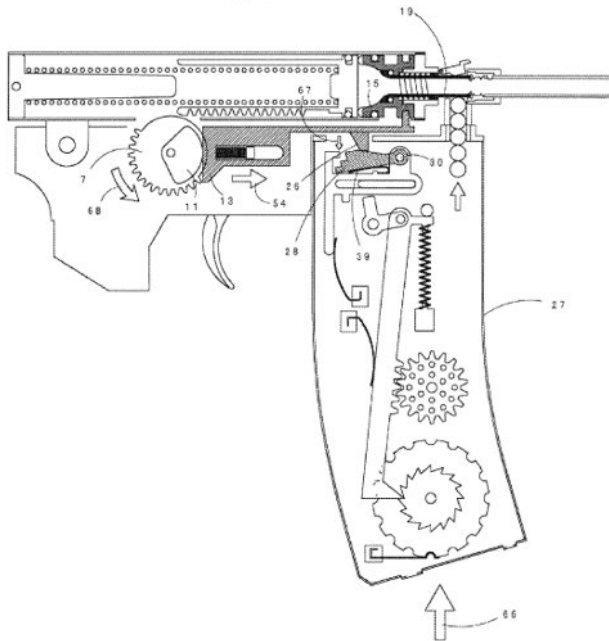
FIG. 9



Id., Fig. 9.

Projectile launcher in the shape of a gun

FIG. 10

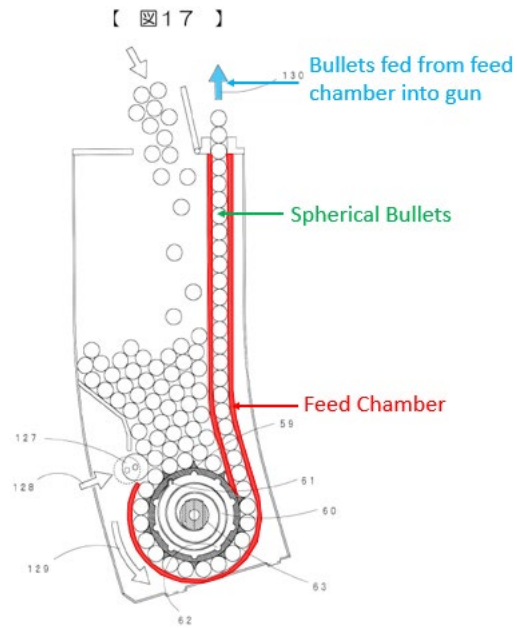


Id., Fig. 10.

6. Claim 5: “The system of claim 1, wherein the projectile launcher includes a feed chamber for loading the soft-projectiles within projectile launcher.”

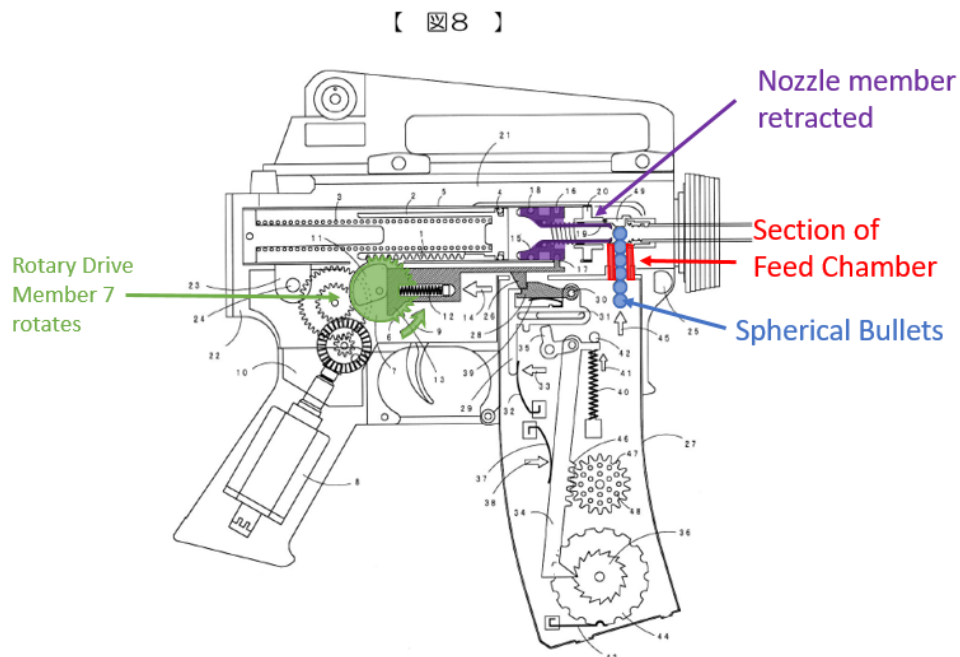
Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious the projectile launcher includes a feed chamber for loading the soft-projectiles within projectile launcher. Ex.1003, ¶¶146-149.

Nagayoshi discloses a feed chamber for loading the soft-projectiles within the projectile launcher. Ex.1003, ¶147. Nagayoshi discloses a toy gun with “a continuous bullet *feed mechanism*” that includes “a drive member for moving a spherical bullet feed mechanism inside the magazine” so that “*bullets can be reliably fed* immediately following a shot even during high-speed continuous shooting.” Ex.1009, ¶0027; Ex.1003, ¶147. The “main concept” of Nagayoshi “is to provide, inside the magazine, a mechanism *for appropriately feeding bullets.*” *Id.*, ¶0028. For example, as shown in Figure 17, “[a] number of the spherical bullets gather in the magazine.” *Id.* ¶0033. Then “spherical bullet feed sprocket 59 [] takes in 20 bullets at the outer periphery” in the magazine. *Id.*, ¶0036. The ammunition then travels up an internal feed chamber (red) and is loaded into the barrel as shown by “arrow 130.” *Id.*, ¶0057.



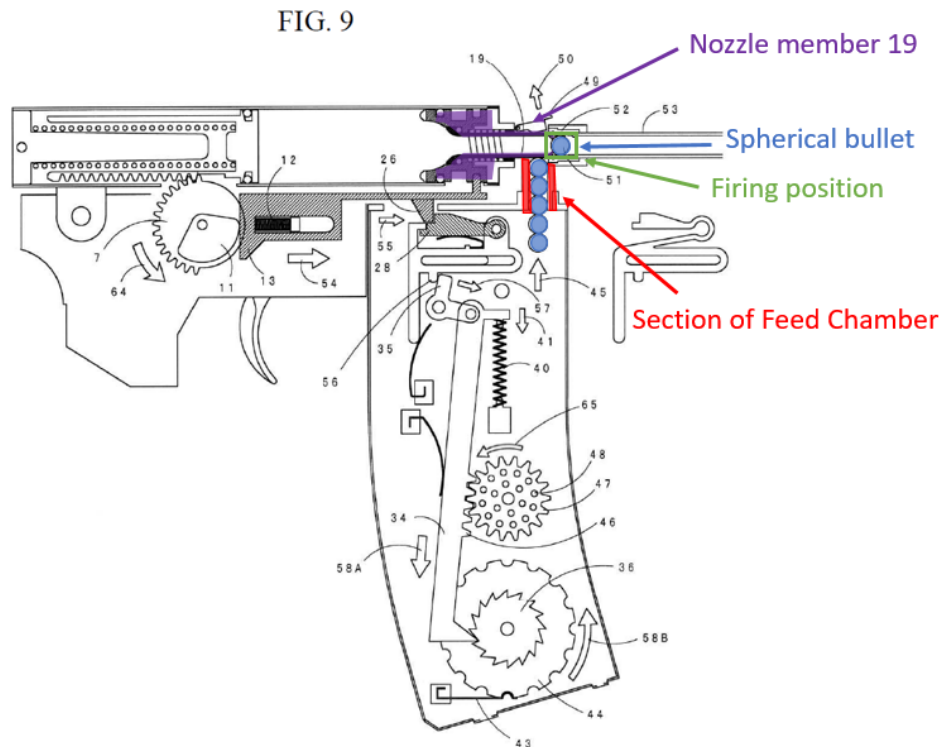
Id., Fig. 17.

With respect to Figure 8, Nagayoshi teaches that the “nozzle member” can “move...backward and forward.” Ex.1009, ¶0035; Ex.1003 ¶147. Figure 8 shows the nozzle retracted, allowing a bullet to load from the feed chamber into the barrel.



Ex.1009, FIG. 8; Ex.1003, ¶147.

“Fig. 9 shows the state when the rotary drive member 7 rotates to an extent in the direction of an arrow 64 and...[a] spherical bullet 51 is pushed to the tip end section of the nozzle member 19 and *pushed inside a barrel packing 52.*” Ex.1009, [0036]; Ex.1003, ¶148.



At this point, the spherical bullet has been loaded from the magazine to the firing position via the feed chamber. Ex.1003, ¶148.

Nagayoshi thus teaches a feed chamber for loading “bullet 51” within the projectile launcher. Ex.1003, ¶148. Patent Owner contends the same configuration practices this claim. Ex.1070, 21-22. A POSITA would have recognized that the same loading process could be used with Spitballs’ hydrated SAP projectiles as they

can withstand the light compressive forces associated with loading them into the barrel via a feed chamber, and would further recognize that routine adjustments to the strength of the SAP or mechanical components of Nagayoshi could be made to accommodate softer projectiles (if necessary). Ex.1003, ¶149; Ex.1005, ¶¶84-85.

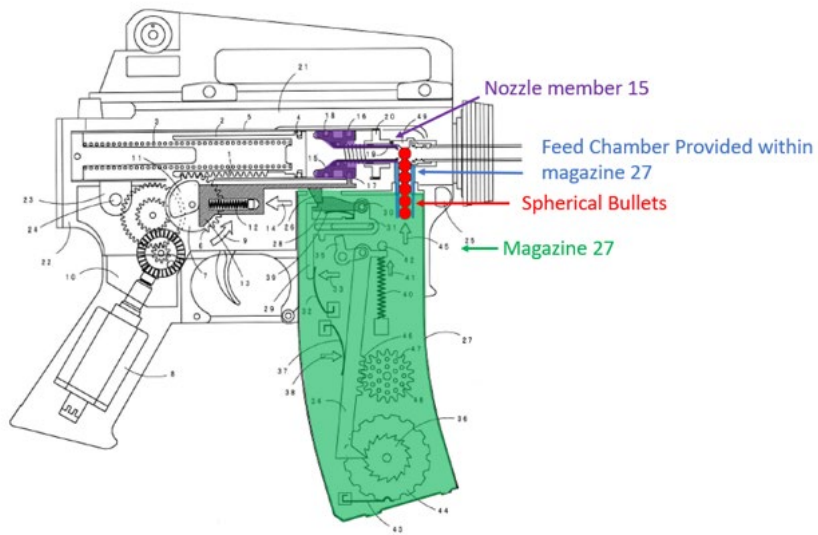
7. Claim 6: “The system of claim 1, wherein the feed chamber is provided within a magazine.”

Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious “wherein the feed chamber is provided within a magazine.” Ex.1003 ¶¶150-153.

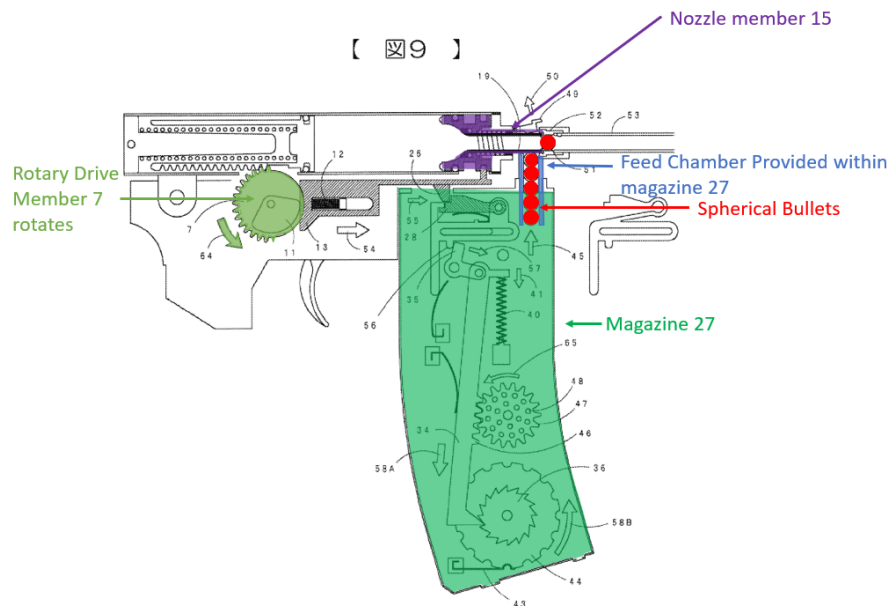
Nagayoshi discloses “[t]he present invention relates to...a continuous bullet supply mechanism for *continuously feeding spherical bullets is provided inside the magazine.*” Ex.1009, ¶0001; *id.* ¶0027 (describing “*a magazine having a continuous bullet feed mechanism* and a toy gun” such that “bullets can be reliably fed immediately following a shot even during high-speed continuous shooting”); Ex.1003, ¶151. Embodiment 1 of Nagayoshi teaches “[w]hen the rotary drive member 7 further rotates in the direction of the arrow 68, a state such as shown in Fig. 9 results and the *bullet feed mechanism in the magazine* functions normally.” Ex.1009, ¶0040; *sid.*, ¶¶0032, 0039 (describing “magazine 27”); Ex.1003, ¶151.

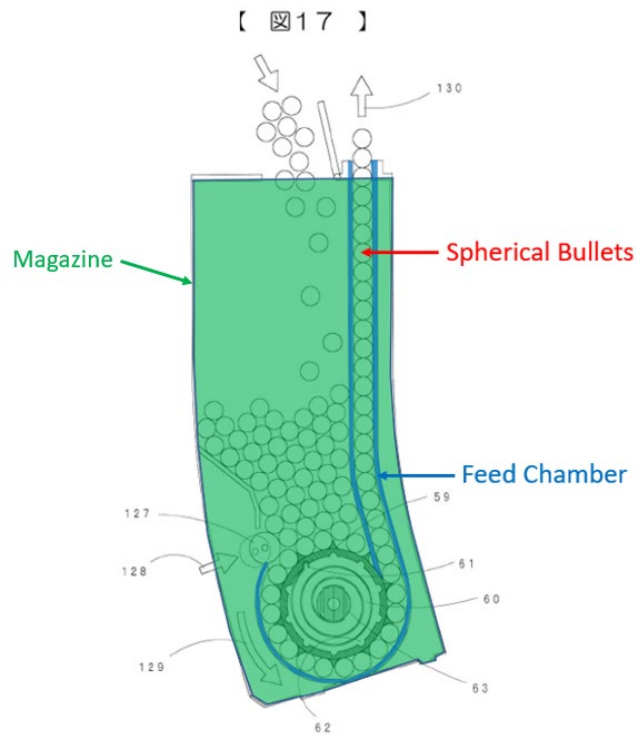
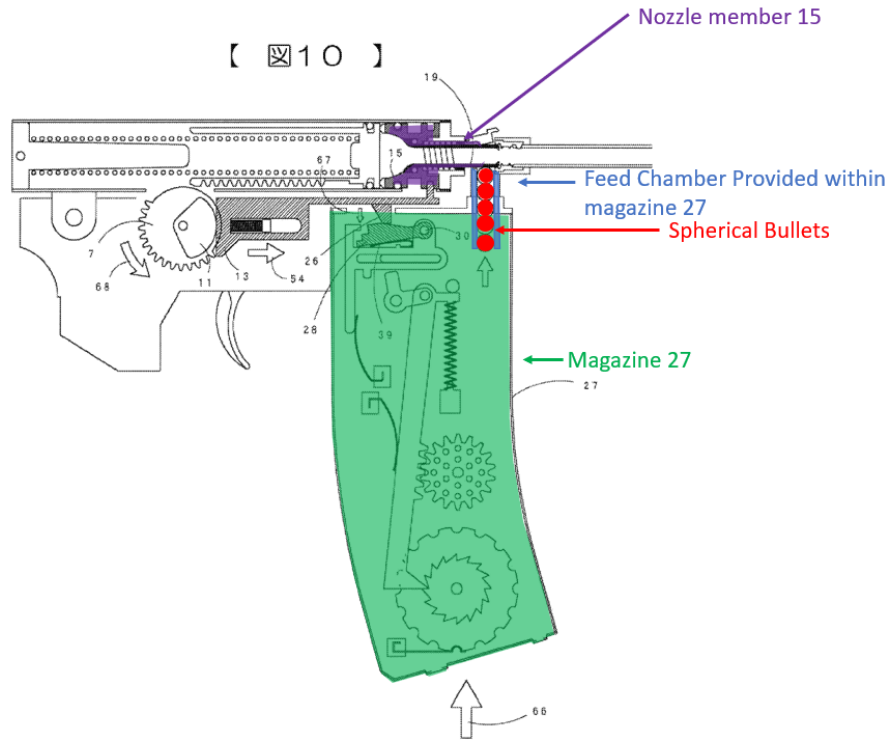
Figures 8-10 and 17 depict “spherical bullets 51” in a feed chamber (blue) that is provided within a magazine (green). Ex.1009; Ex.1003, ¶¶152-153; §X.B.3.

【 図8 】



【 図9 】





8. Claim 7: “The system of claim 5, wherein the projectile launcher is adapted to load the soft-projectiles.”

Nagayoshi in combination with Spitballs renders obvious claim 5. §X.B.6.

Nagayoshi in combination with Spitballs renders obvious “wherein the projectile launcher is adapted to load the soft-projectiles.” As explained in detail in §X.B.6, the “toy gun” of Nagayoshi is adapted to load the projectiles—for example, Nagayoshi’s toy gun loads projectiles from the feed chamber in the magazine into a firing position within the toy gun barrel, as shown in Figure 9. Ex.1003, ¶¶154-160.

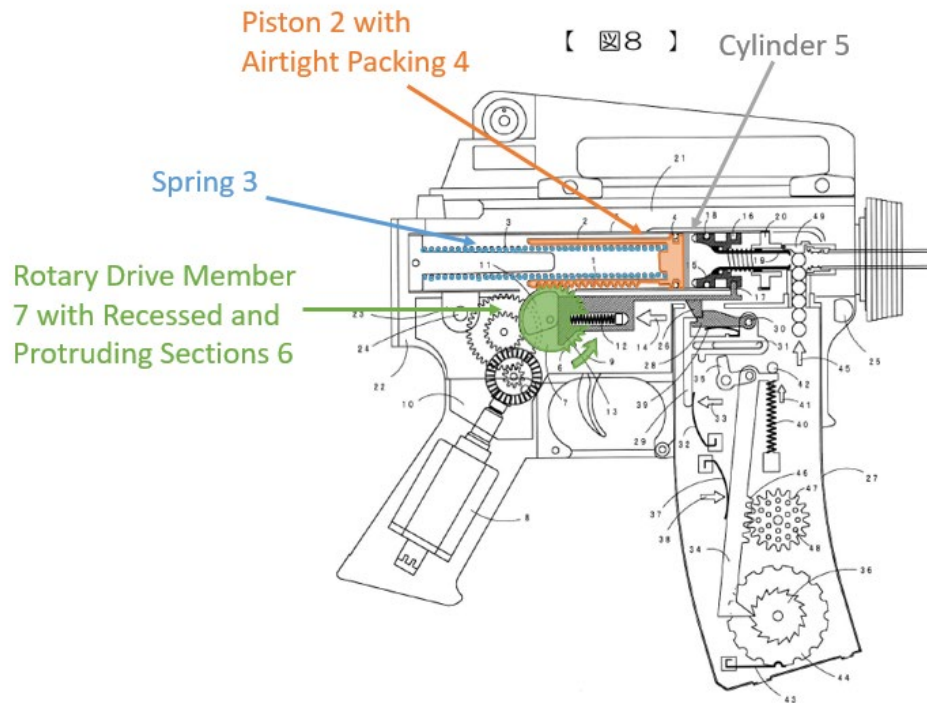
9. Claim 8:

a. “The system of claim 7, wherein the projectile launcher further comprises:”

Nagayoshi in combination with Spitballs renders obvious claim 7. §X.B.8.

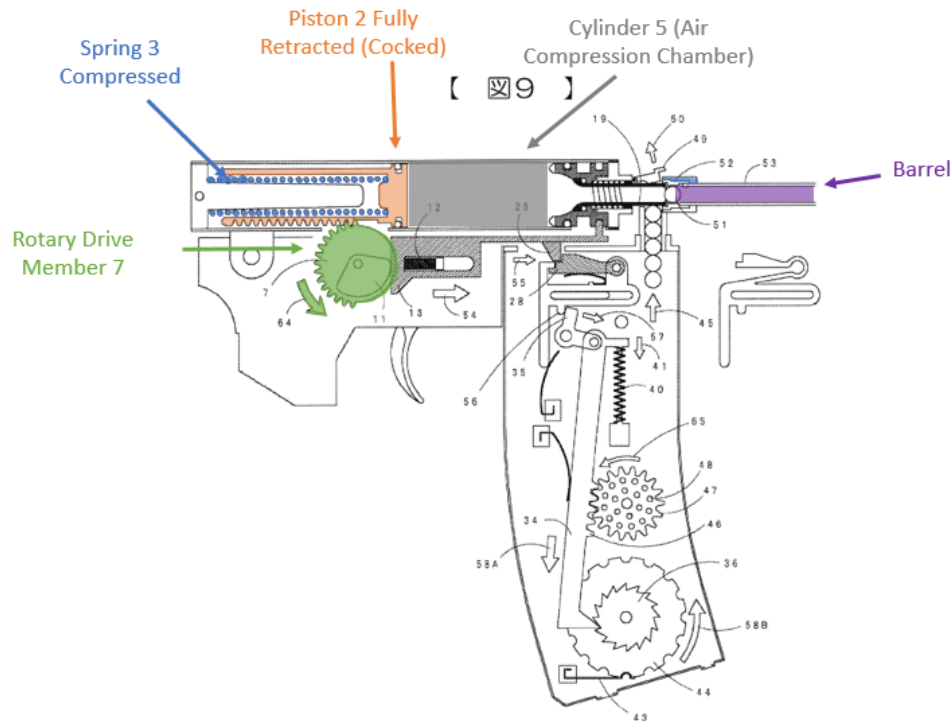
b. “an air compression chamber;”

Nagayoshi discloses an air compression chamber (“cylinder 5”). Ex.1009, ¶¶0030-0031; Ex.1003, ¶¶162-166. Nagayoshi teaches “[a] spring 3 continuously presses a *piston 2*” and “a packing 18” provided on the front of the piston “*maintains airtightness in the interval with the cylinder 5.*” Ex.1009, ¶0030; Ex.1003, ¶162. As “rotary drive member 7” turns, “piston 2” within “cylinder 5” is pulled back. *Id.*



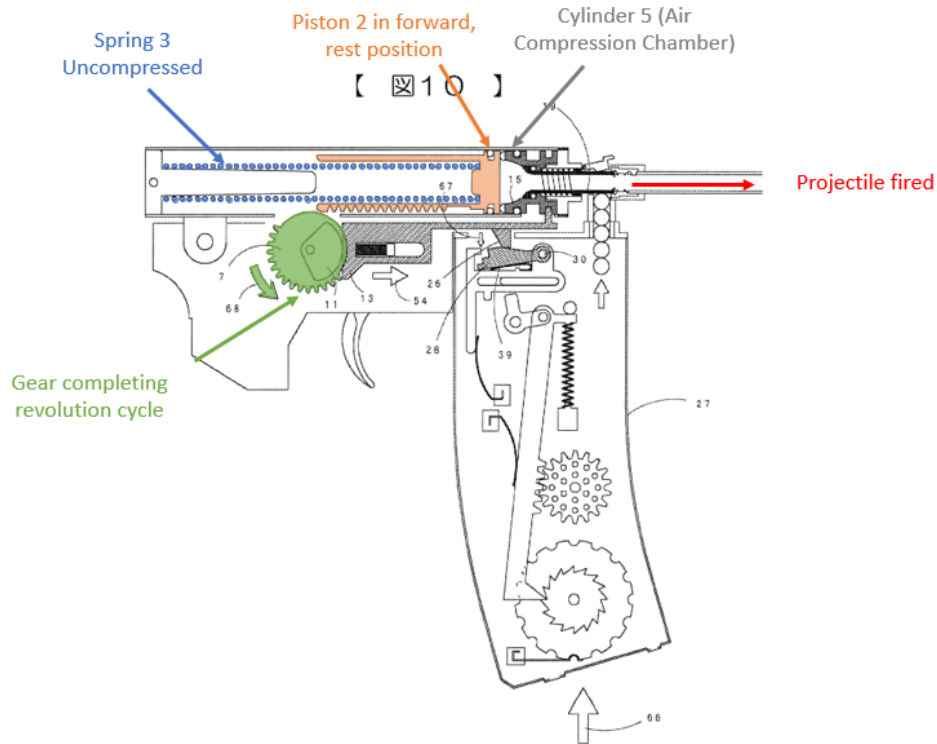
Ex.1009, Fig. 8:

Figure 9 shows “piston 2” fully retracted within “cylinder 5,” such that the amount of air in “cylinder 5” in front of “piston 2” has substantially increased from Figure 8. Ex.1009, ¶¶0030, 0036, Fig. 9; Ex.1003, ¶163.



Piston 2 is released when rotary drive member 7 spins far enough that there are no longer recessed and protruding section 6 to engage with piston 2. Ex.1009, ¶0030. When the toothed portion of rotary drive member 7 stops engaging piston 2, piston 2 having “airtightness” with cylinder 5 springs forward, displacing the air that has gathered in cylinder 5 into the smaller-diameter nozzle and barrel and reaching a “shooting completion state” in Figure 10. Ex.1009, ¶¶ 0030, 0039; Ex.1003, ¶163. The displacement of air in cylinder 5 into the nozzle-barrel compresses the air because the barrel’s diameter is more narrow than the diameter of cylinder. Ex.1009, Figs. 8-10; Ex.1003, ¶163. Figure 10 depicts the “shooting completion state,” after the piston 2 is released, the biasing force of the spring drives the piston forward in

cylinder 5, which compresses the air into the smaller diameter barrel and launches a spherical bullet into free flight. Ex.1003, ¶¶164-165.

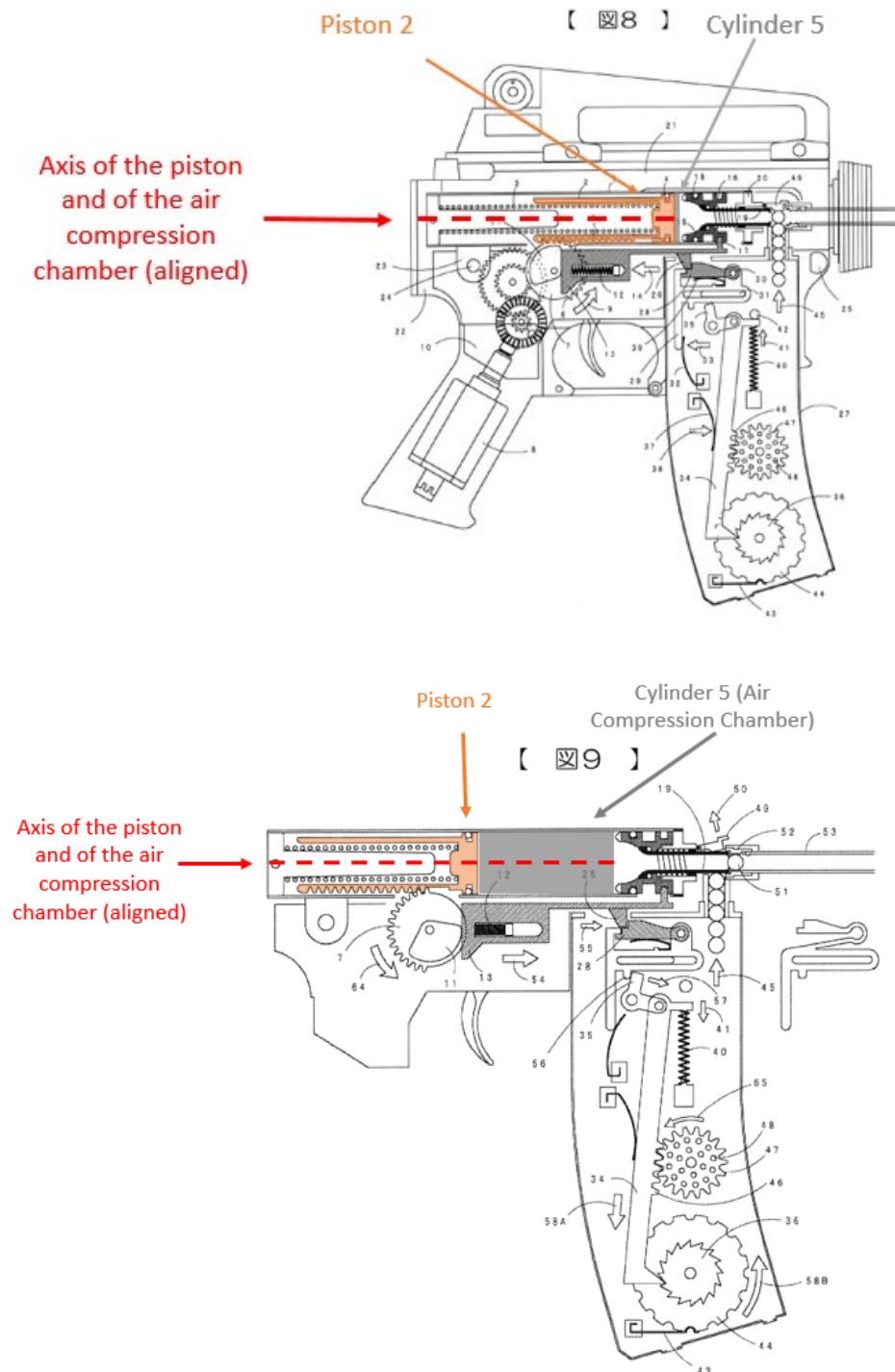


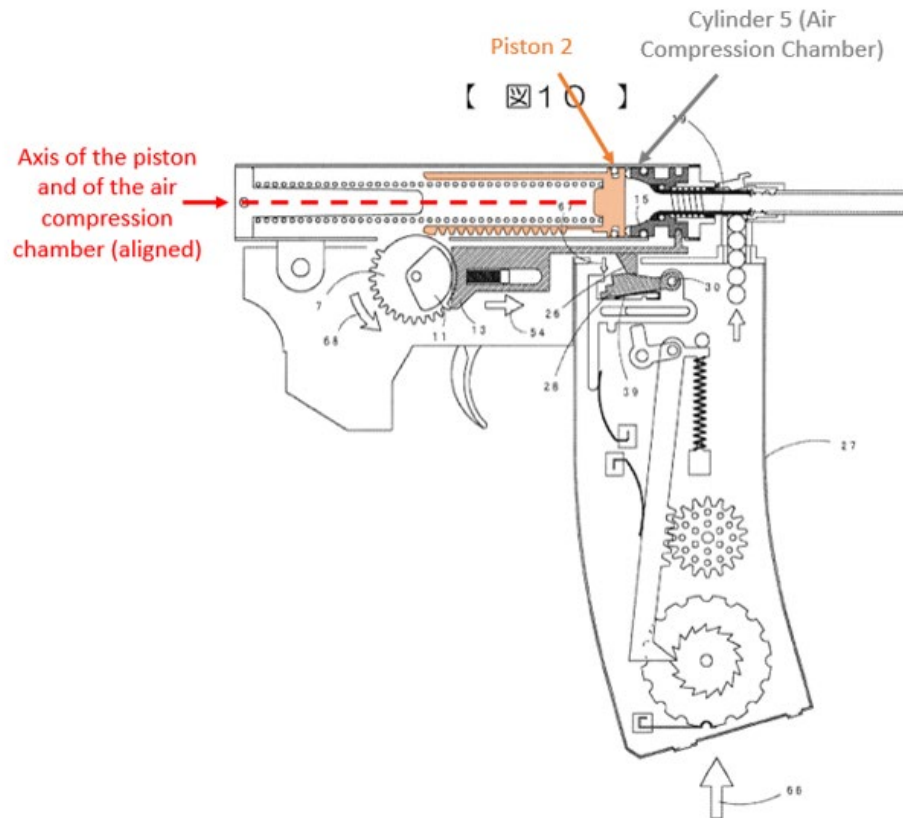
Ex.1009, Figure 10; Ex.1003, ¶164.

c. “a piston disposed within and axially aligned with the air compression chamber; and”

Nagayoshi discloses “a piston disposed within and axially aligned with the air compression chamber.” Ex.1003, ¶166. Nagayoshi teaches “[a] spring 3 continuously presses a *piston 2*.... A packing 4 is provided at the front periphery of the *piston 2*, maintaining airtightness in the interval with a cylinder 5.” Ex.1009, [0030]; Ex.1003, ¶166. Thus, the piston is provided within and axially aligned with the air compression chamber. *Id.* ¶166. Figures 8-10 show the piston is disposed

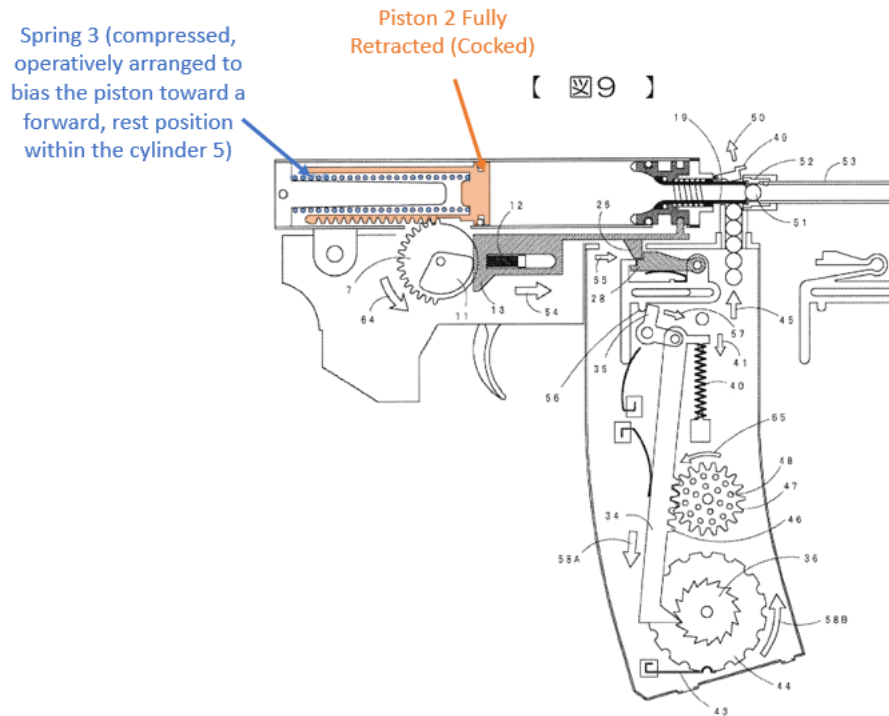
within the air compression chamber (“cylinder 5”) and axially aligned with it
(Ex.1009, Figs. 8-10; Ex.1003, ¶166):



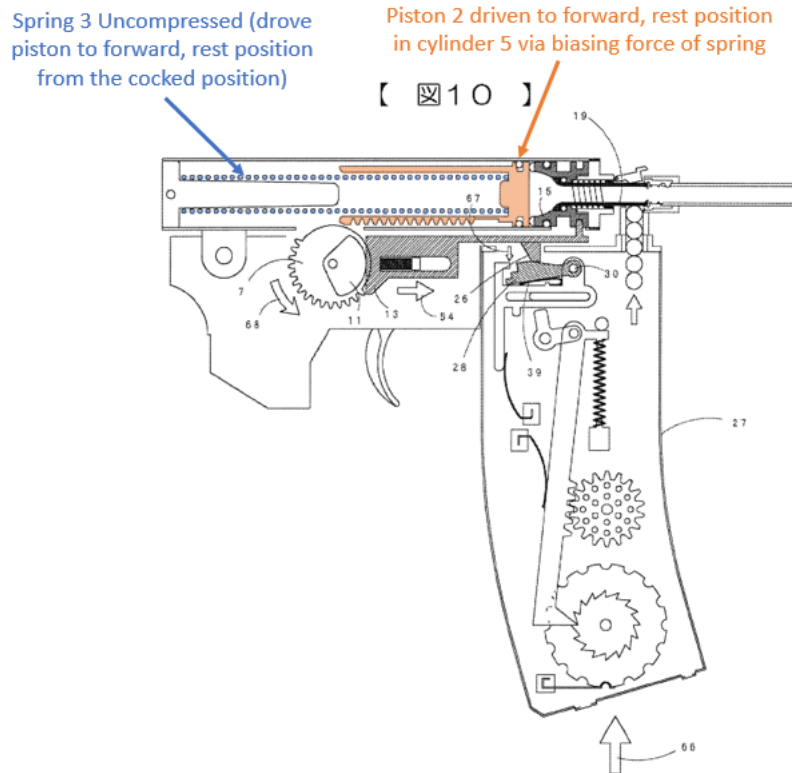


- d. “a spring operatively arranged to bias the piston toward a rest position from a cocked position within the air compression chamber.”

Nagayoshi discloses “a spring operatively arranged to bias the piston toward a rest position from a cocked position within the air compression chamber.” Ex.1003, ¶¶167. As discussed in §X.B.9.b, the “*spring 3 continuously presses a piston 2....*” Ex.1009, ¶0030; Ex.1003, ¶167. When the gear 7 turns, it draws the piston backward to a cocked position and compresses the spring. *Id.* Figure 9 shows the spring compressed and the piston in a cocked position:



Ex.1009, Fig. 9; Ex.1003, ¶167. When the piston is released, the biasing force of the spring drives the piston forward from the cocked position to a rest position (the “shooting completion state as shown in FIG. 10”) (Ex.1009, ¶¶0030, 0039, Fig. 10; Ex.1003, ¶167):



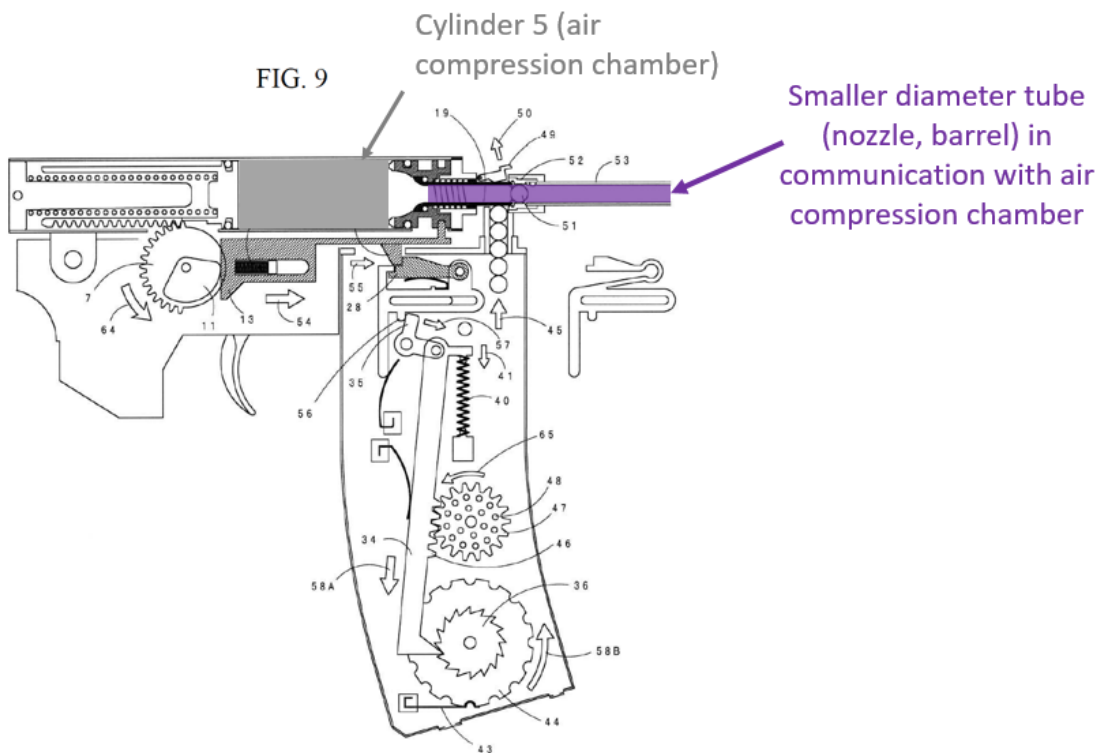
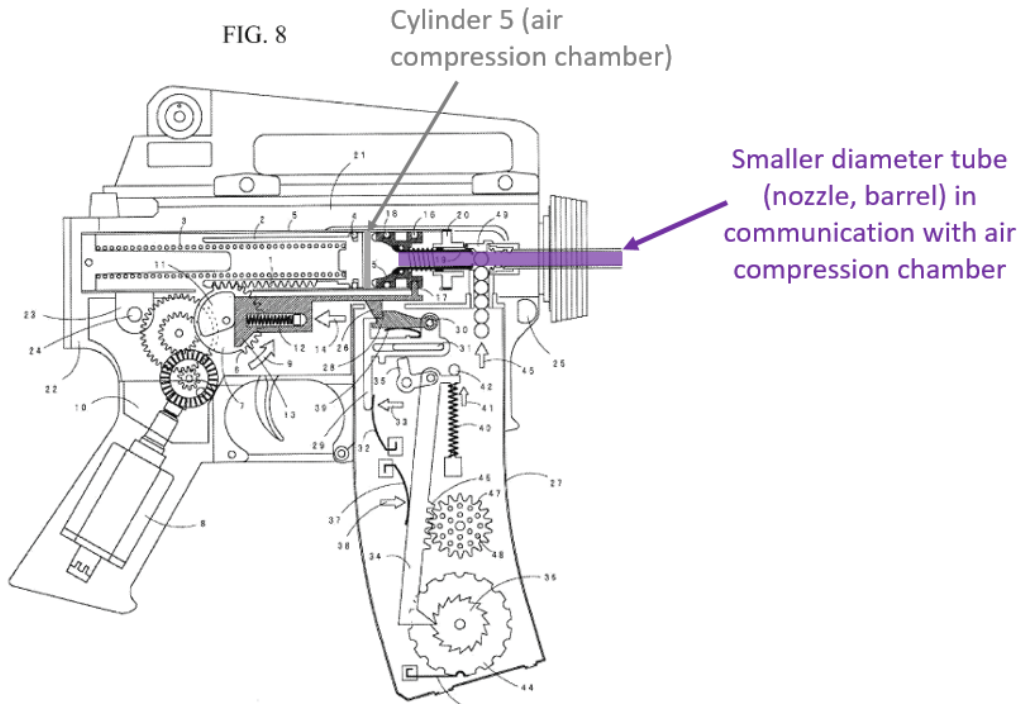
10. Claim 9:

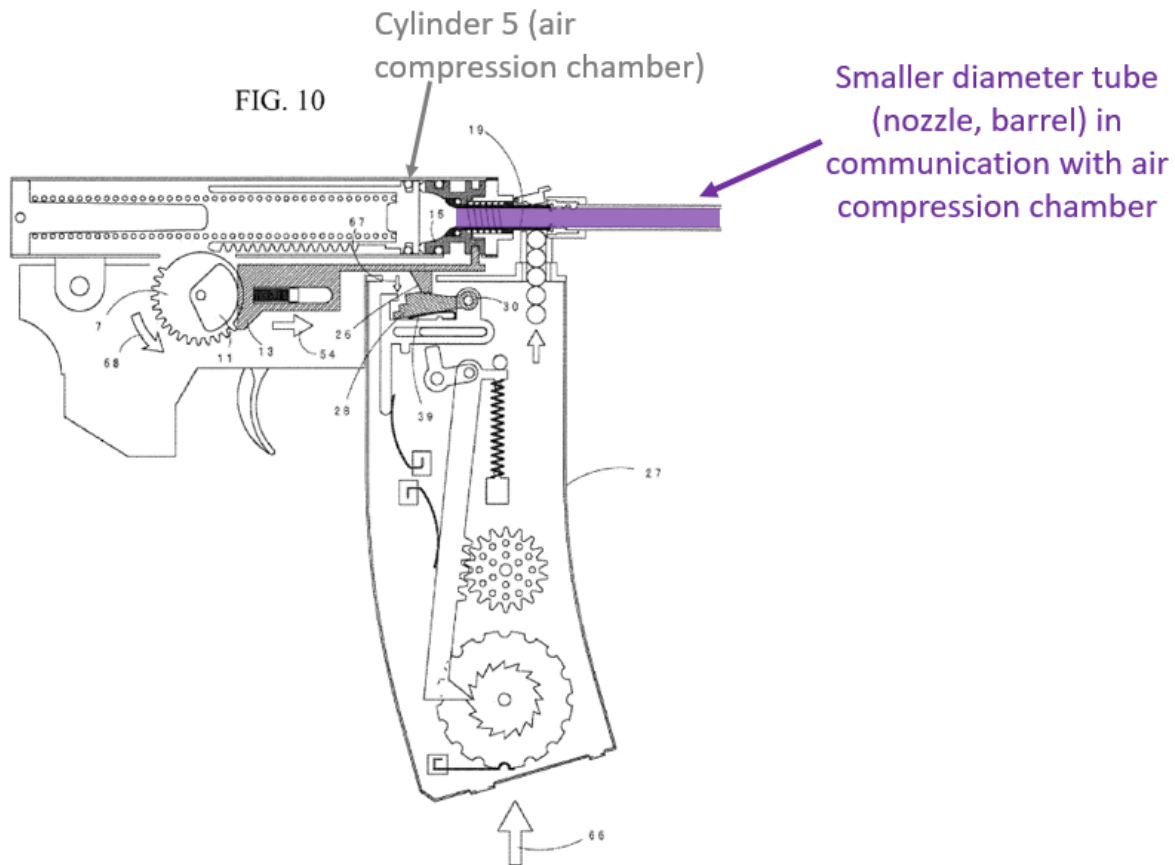
a. “The projectile system of claim 8,”

Nagayoshi in combination with Spitballs renders obvious the projectile system of claim 8. §X.B.9.

b. “wherein the projectile launcher further comprises a smaller diameter tube in communication with the air compression chamber, and”

Nagayoshi discloses “wherein the projectile launcher further comprises a smaller diameter tube in communication with the air compression chamber.” Ex.1003 ¶¶169-170. The air compression chamber (“cylinder 5”) is in communication with a smaller diameter tube (*e.g.*, the tube formed by nozzle member 19, and the tube formed by the barrel). §X.B.9.b; Ex.1003, ¶170.





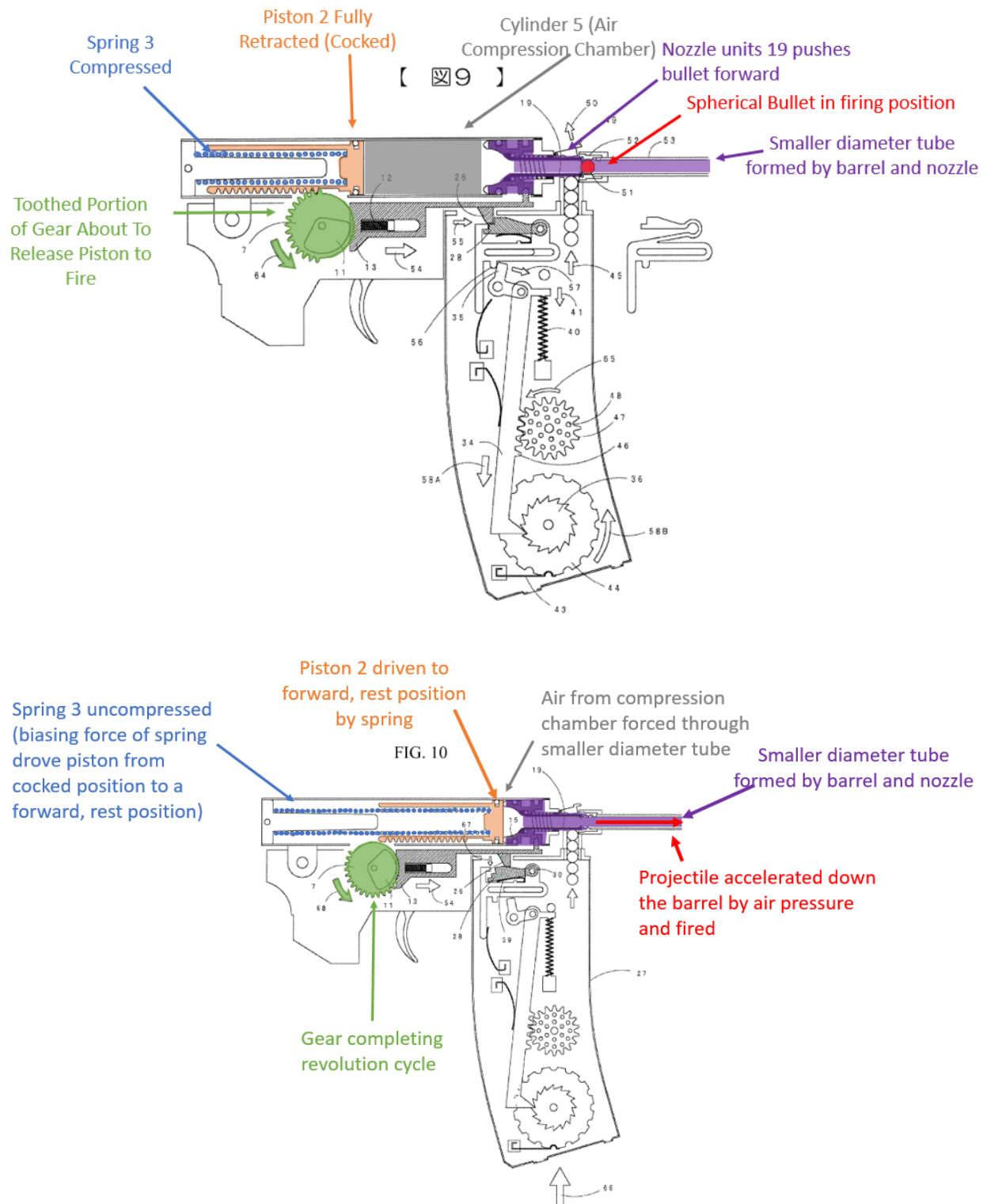
Ex.1009, Figs. 8-10; Ex.1003, ¶170.

- c. “wherein a biasing force of the spring is sufficient to cause the piston to move from the cocked position to the rest position to force air from the air compression chamber into the smaller diameter tube and cause a soft-projectile located at the firing position to accelerate and be launched from the projectile. from the feed chamber to a firing position of the projectile launcher.”

As issued, claim 9 includes part of an extraneous sentence “...from the chamber to a firing position of the projectile launcher” at the end. The claims as submitted during prosecution did not have that extraneous text (Ex.1002, 35 (cl. 19)) and the only amendment did not add this language (*id.*, 64). The PTAB should

consider the patentability of the claim without the extraneous language. *Fitbit, Inc. v. Valencell, Inc.*, 964 F.3d 1112, 1119–20 (Fed. Cir. 2020).

Nagayoshi in combination with Spitballs renders obvious this limitation. Ex.1003, ¶171-174. As discussed in §X.B.9.b, “[a] spring 3 ***continuously presses a piston 2***,” such that the biasing force of the spring 3 is sufficient to cause the piston 2 to move from a cocked position (shown in Fig. 9) to a rest position (shown in Fig. 10). Ex.1003, ¶173. Because “[a] packing 4 is provided at the front periphery of the piston 2, maintaining airtightness in the interval with a cylinder 5” (Ex.1009, ¶0030), as the piston drives forward from the cocked position shown in Figure 9 to the rest position shown in Figure 10, air in the air compression chamber (cylinder 5) is compressed and forced from the air compression chamber through the smaller diameter nozzle member 19 and the smaller diameter barrel, which causes a projectile located at the firing position to accelerate down the barrel and be launched from the Nagayoshi launcher (Ex.1003, ¶173):



Ex.1009, Figs. 9-10.

Using Spitballs' hydrated SAP soft-projectiles in place of the "spherical bullets" taught by Nagayoshi discloses this limitation. Ex.1003, ¶174.

11. Claim 10: "The system of claim 1, wherein the super absorbent polymer has a cross linking density sufficient to prevent the soft-projectiles from breaking apart when launched from the projectile launcher."

Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious the super absorbent polymer has a cross linking density sufficient to prevent the soft-projectiles from breaking apart when launched from the projectile launcher. Ex.1003, ¶176-178.

Spitballs discloses and renders obvious this limitation. §X.A.4. And it would be obvious to a POSITA to use a hydrated SAP that has sufficient crosslinking density to not break apart when fired with the projectile launcher of Nagayoshi. §X.B.1.

12. Claim 11: "The system of claim 1, wherein the projectile launcher is designed to use air pressure to launch the soft-projectiles."

Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious "wherein the projectile launcher is designed to use air pressure to launch the soft-projectiles." Ex.1003, ¶¶179-181.

Nagayoshi discloses and claims an “electric air gun.” Ex.1009, Cls. 21-30; Ex.1003, ¶180. In Embodiment 1, Nagayoshi explains that “[a] spring 3 continuously presses a piston 2” and that packing 4 is provided on the front of piston 2 “*maintaining airtightness*” with cylinder 5. Ex.1009, ¶0030; Ex.1003, ¶180. Figure 9 depicts Nagayoshi’s toy gun when “rotary drive member 7” has continued turning and fully retracted “piston 2” with “airtight packing 4.” Ex.1009, ¶0036, Fig. 9; Ex.1003, ¶180:

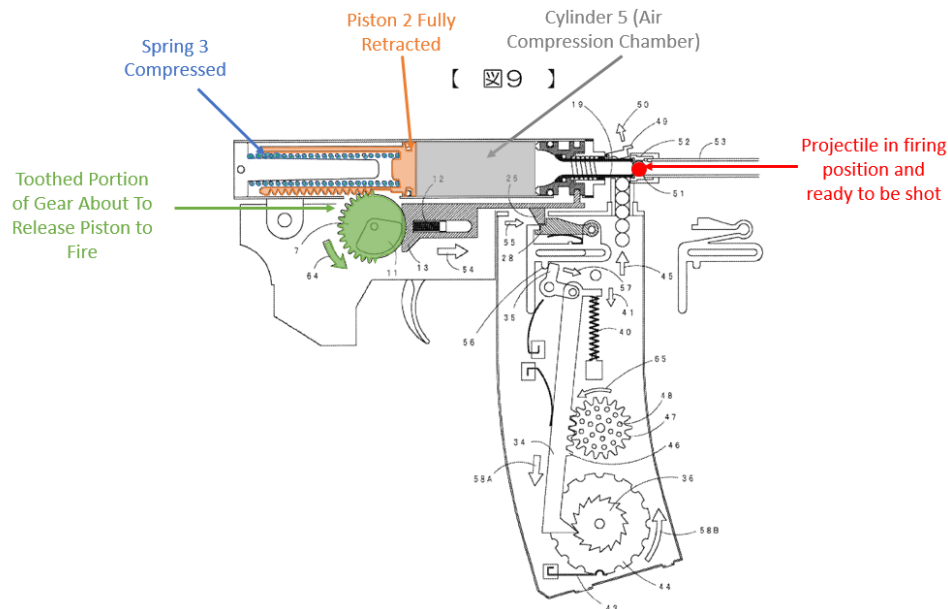
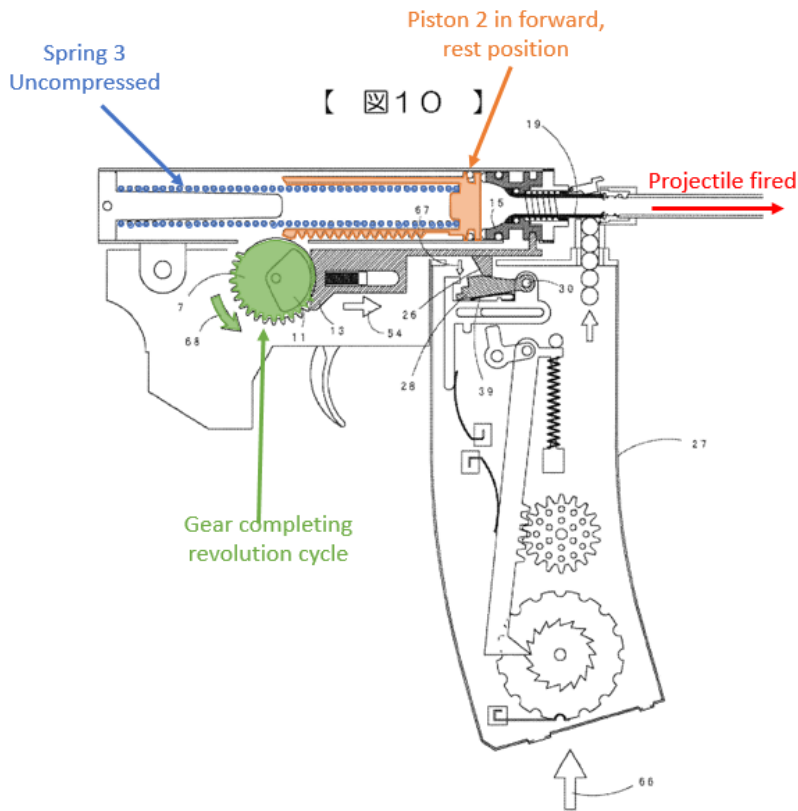


Figure 10 shows the “shooting completion state” where the gear releases the piston, the piston is driven forward, compressing air in the air compression chamber into the smaller diameter barrel with the “airtightness” between the piston and cylinder, and using that air pressure to launch the projectile. Ex.1009, ¶0030, 0039, Fig. 10; Ex.1003, ¶181.

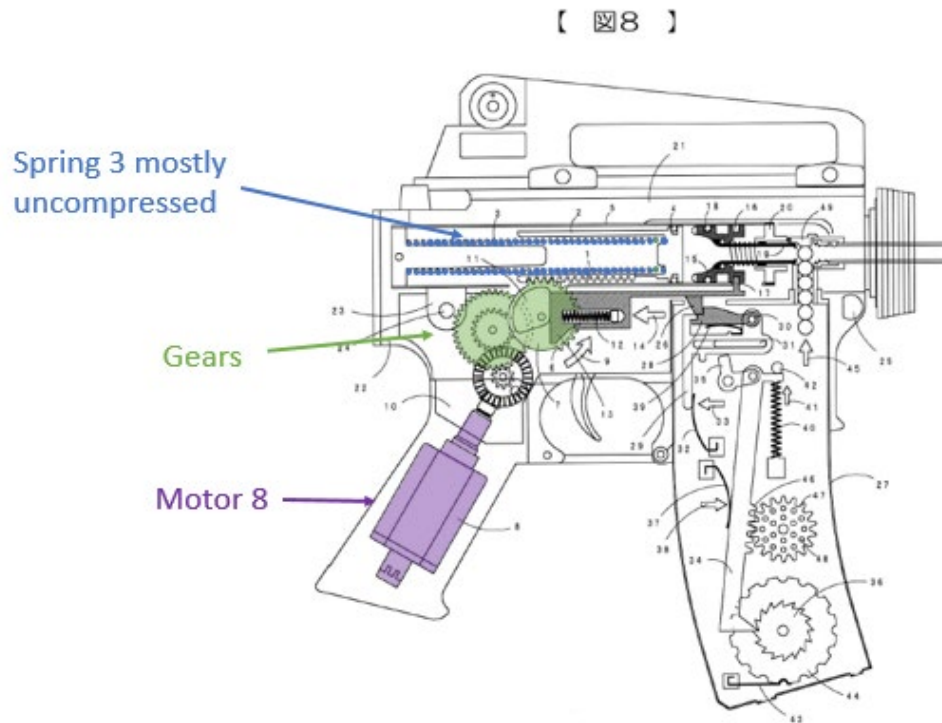


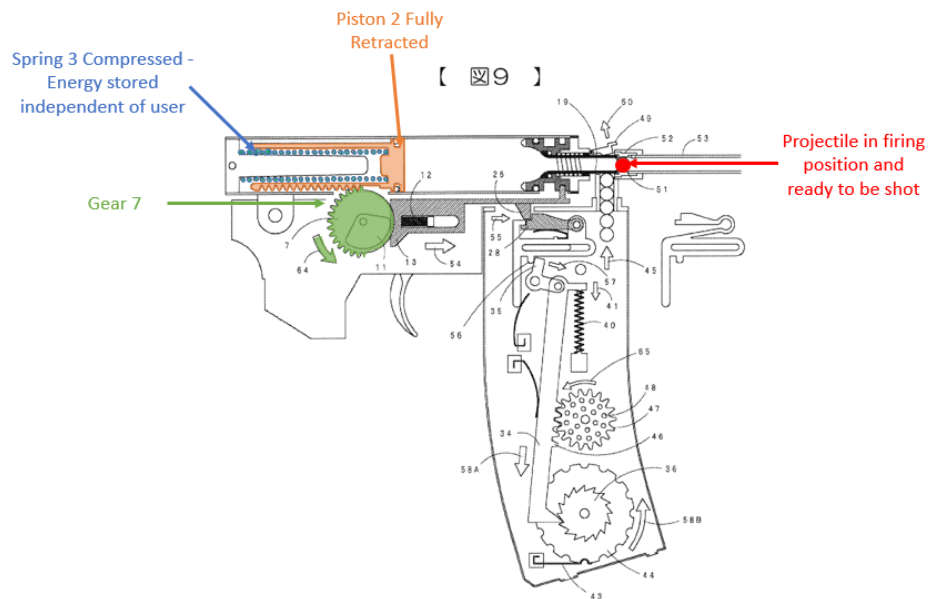
Using hydrated SAP projectiles, *e.g.*, Spitballs, with Nagayosi's air gun would have been obvious and results in a projectile launcher that is designed to use air pressure to launch the soft-projectiles. Ex.1003, ¶181.

13. Claim 12: "The system of claim 1, wherein the projectile launcher comprises a firing mechanism that stores energy independent of a user."

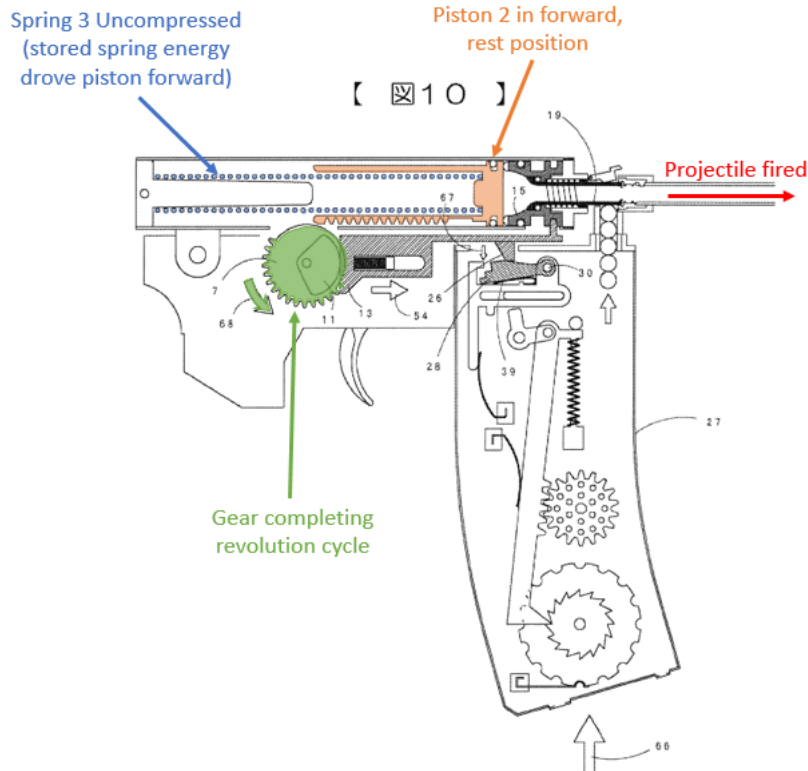
Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious "wherein the projectile launcher comprises a firing mechanism that stores energy independent of a user." Ex.1003, ¶¶182-185.

Nagayoshi uses electromechanical components to compress “spring 3”: “[a] spring 3 continuously presses a piston 2 provided with a recessed and protruding section 1 corresponding to a rack gear toward the muzzle.... A *rotary drive member* 7 having a recessed and protruding section 6 that meshes with the recessed and protruding section 1 is made to rotate in the direction of an arrow 9 by a *motor* 8 and a series of reduction gears” that “pull[] the piston 2 backward.” Ex.1009, ¶0030; Ex.1003, ¶183. Nagayoshi discloses an “*electric* gun,” Ex.1009, ¶¶0031, 0035, 0043; Ex.1003, ¶184. When the trigger is pulled, “motor 8” is electrically activated and turns “rotary drive member 7,” which stores energy in the spring independent of the user, as shown in Figures 8-9 below. Ex.1009, ¶¶0030-0031 Figs. 8-9; Ex.1003, ¶184.





Ex.1009, Fig. 9. The spring is a component of the firing mechanism (Ex.1003, ¶184)—the energy stored in the spring is released as “gear 7” continues turning, driving the piston forward, which compresses air and fires the bullet, as shown in Figure 10 (Ex.1003, ¶184):



Ex.1009, Fig. 10.

In the ITC Case, Patent Owner accused the same functionality of meeting this claim. Ex.1009, ¶0039; Ex.1005, ¶185; Ex.1042, 32; 1070, 30-33. Nagayoshi, likewise, has firing mechanisms with springs that can be compressed and left in that state. Ex.1009, ¶0039 (disclosing firing mechanism stopping at an “intermediate state” such as shown in Figure 9); Ex.1003, ¶185.

14. Claim 14: “The system of claim 1, wherein the projectile launcher comprises a firing mechanism that directly applies a force to the ammunition.”

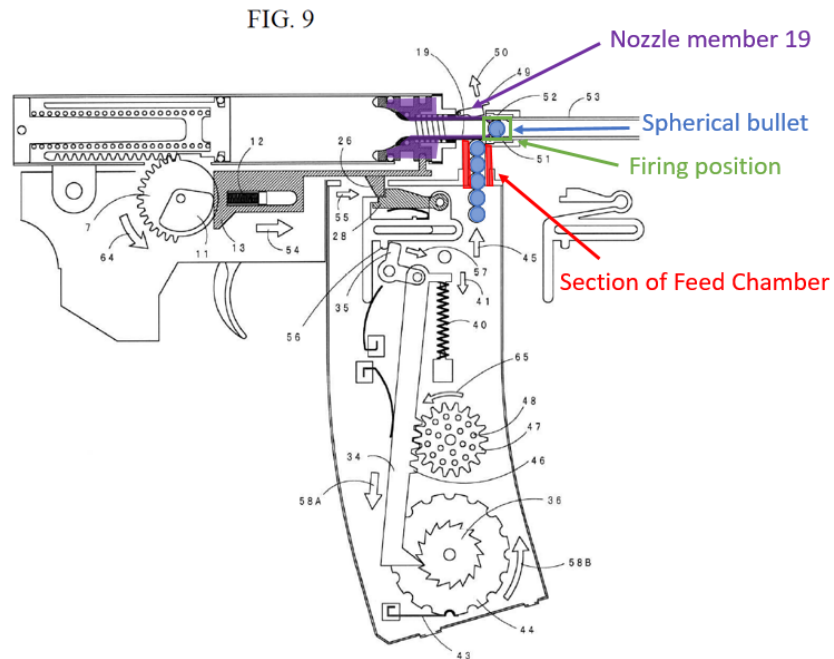
Nagayoshi in combination with Spitballs renders obvious the system of claim 1. §X.B.2. Nagayoshi in combination with Spitballs renders obvious “wherein the

projectile launcher comprises a firing mechanism that directly applies a force to the ammunition.” Ex.1003, ¶¶186-187.

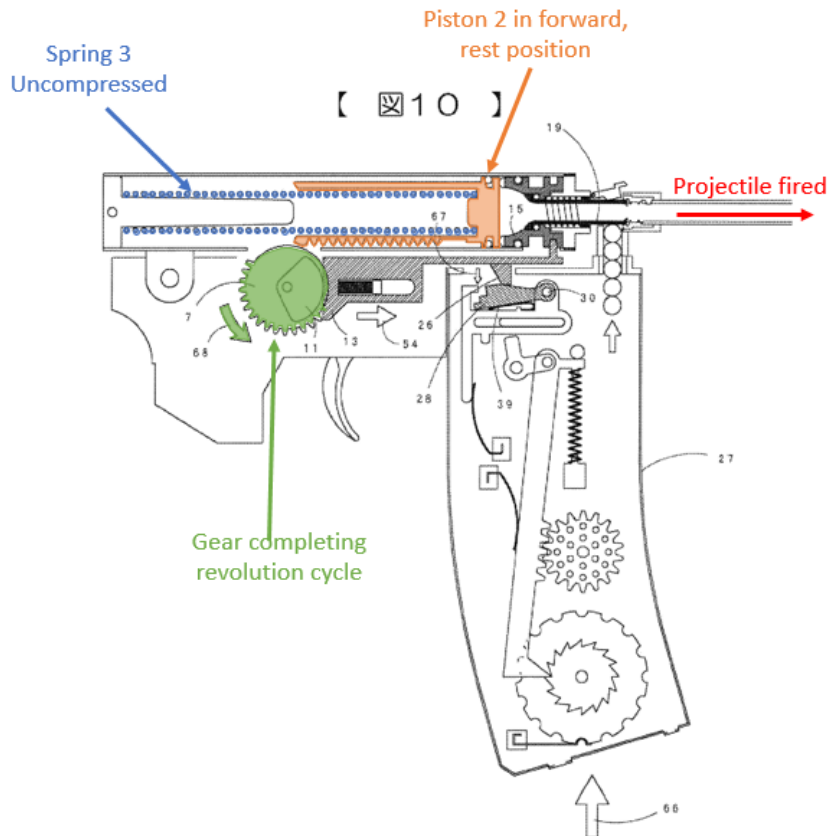
Nagayoshi discloses launching ammunition using air pressure generated by a spring, piston, and air compression chamber after a nozzle has moved the ammunition into the barrel, as depicted in Figures 8-10. §§X.B.9, X.B.12. Ex.1003, ¶87.

Patent Owner’s position in the ITC Case is that using a spring, piston, and air compression chamber to compress air to launch a projectile constitutes a “direct” application of force. Ex.1070, 27-35; Ex.1003, ¶187.⁶ The air pressure generated by the piston in the airsoft-type firing mechanism of Nagayoshi directly applies a force to the “spherical bullets” under Patent Owner’s interpretation. Ex.1003, ¶187; §X.B.12. The direct application of force causes the projectile (“spherical bullet 51”) located in the firing position to be launched. Ex.1003, ¶187; §X.B.10.

⁶ If Patent Owner argues this is an “indirect” application of force, that is inconsistent with its prior positions, and would render Claim 15 invalid for the same reasons.



In Figure 10, which is the “shooting completion state” (Ex.1009, ¶0039), the projectile in the firing position (Fig. 9) is no longer depicted because it has been launched by the force of the air pressure (*id.*, Fig. 10; Ex.1003, ¶187):



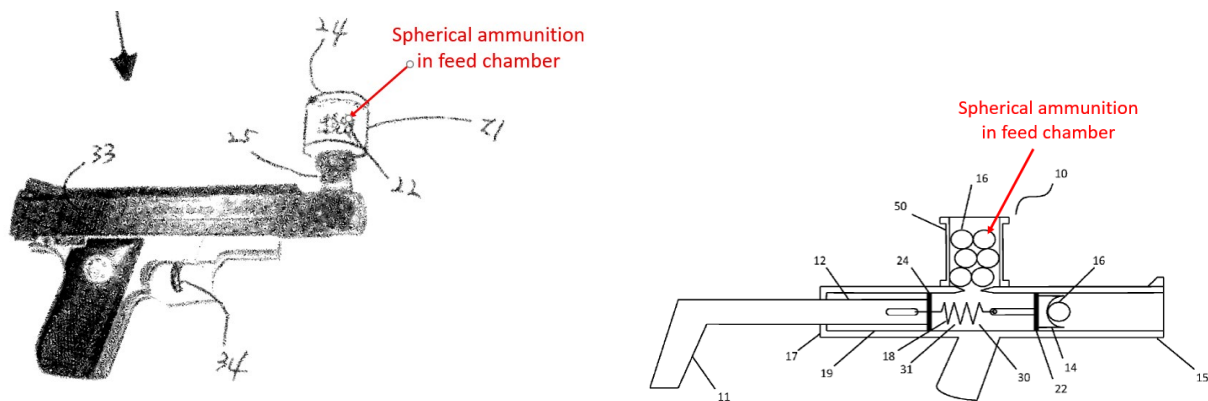
C. Secondary Considerations

Secondary considerations further support a finding of obviousness. Ex.1003, ¶¶188-206. Secondary considerations cannot overcome “the fact that nearly every single person or entity who encountered the ... problems in the industry came up with the same general [] design to manage it.” *Geo M. Martin Co. v. Alliance Mach. Sys. Int’l LLC*, 618 F.3d 1294, 1304 (Fed. Cir. 2010). Thus, “[i]ndependently made, simultaneous inventions, made ‘within a comparatively short space of time,’ are persuasive evidence that the claimed apparatus ‘was the product only of ordinary mechanical or engineering skill.’” *Id.*

The concept of launching SAP balls was so obvious by February 2010 that numerous toy makers likewise had the idea. For example, KR2010-0004855 (“Kim”), filed November 1, 2008 and published May 11, 2010, discloses “Toy bullets formed of gel or gel material.” Ex.1016, Title. Kim teaches launching gel bullets (hydrating dry SAP beads forms a gel, Ex.1005, ¶45) using air pressure generated by a spring, piston, and air compression chamber because gel is safer than standard ammunition and prevents injury—exactly as taught by the ’282 Patent: “The present invention is to improve the bullet of a toy gun *to prevent injury to the human body*; ...when...a *toy bullet formed of gel or gel material* is placed inside the barrel, ...the *piston* is pulled backwards, and a trigger is pulled by *charging air pressure inside the bullet cylinder*, the *air pressure inside the bullet cylinder is caused to push and fire the gel or gel bullet*...; therefore it is *a very safe and useful toy bullet that is safer* to use than a bullet of a conventional rigid material structure and *does not cause injury to the human body*.” Ex.1016, Abstract; *id.* ¶¶ 0001-0003 (“Conventional bullets are made of hard materials, and some people become disabled therewith, so it is necessary to develop safe gels or gel bullets to improve dangerous bullets and supply bullets that are safe.”), 0004, 0033-34 (describing firing with a spring, piston, and air compression chamber, and “gel material bullets prevent injuries by mitigating shock”); *cf.* Ex.1001, 3:3-6 (“The super absorbent polymer projectile launching toys and/or weaponry described herein may increase

the user experience as compared to foam-based projectile toys, yet they remain safe for children to use.”), 3:45-61 (teaching “projectile launching devices, such as toys, amateur guns and weaponry that use projectiles formed from a Super absorbent polymer (SAP).... Because SAP projectiles break down under excessive pressure, the force at impact is spread over a much wider Surface area, thus reducing the likelihood of injury.”); Ex.1003, ¶193.

Kim likewise discloses a feed chamber to drop the spherical gel ammunition into the launcher, just like the '683 Patent:



Ex.1016, Fig. 1 (left); Ex.1001, Fig. 1 (right).

Although Kim is not pre-AIA prior art, it nonetheless demonstrates the state of the art and knowledge of POSITAs as of February 2010. *Cross Med. Prod., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1322 (Fed. Cir. 2005) (“Evidence of a motivation to combine references need not be in the form of prior art. Evidence that a person of ordinary skill in the art recognized the same problem to be solved as the inventor and suggested a solution is, at the least, probative of a person of ordinary

skill in the art's willingness to search the prior art in the same field for a suggestion on how to solve that problem.”). POSITAs had already thought of using soft, gel pellets in a toy air gun. Ex.1003, ¶¶192-193.

Similarly, Steve Spangler developed an air-powered launcher for hydrated SAPs by May 28, 2008 and publicly demonstrated it at the Science in the Rockies conference on July 10, 2008. *See* §X.B.1; Ex.1003 ¶194.

Evidence from shortly even a year after the alleged invention is relevant to the state of the art and whether one of skill in the art would know to combine a projectile launcher with hydrated SAP projectiles. *Ecolochem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1379 (Fed. Cir. 2000) (“The fact of near-simultaneous invention, though not determinative of statutory obviousness, is strong evidence of what constitutes the level of ordinary skill in the art,” and “is directly tied to the level of knowledge attributable to [POSITAs].”). *Geo M. Martin Co. v. Alliance Mach. Sys. Int’l LLC*, 618 F.3d 1294, 1306 (Fed. Cir. 2010) (“[T]he invention...occurring only a year later than the earliest possible reduction-to-practice date of the claimed invention, qualified as a simultaneous invention.”).

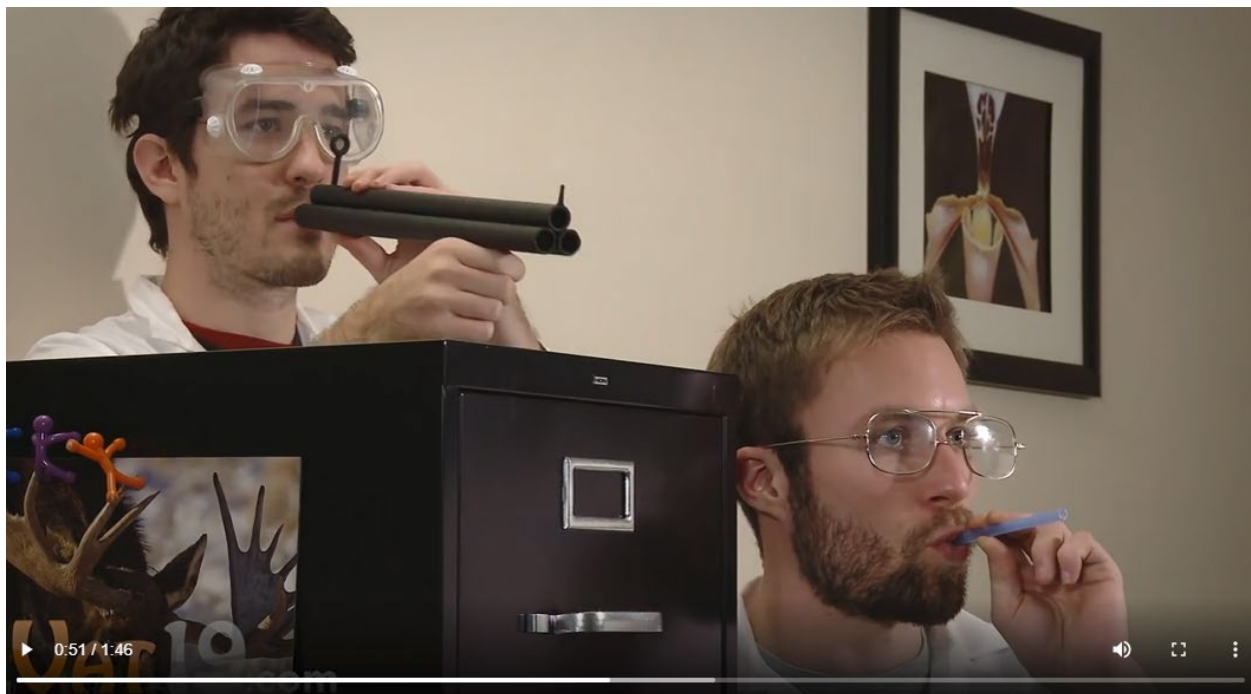
U.S. Patent No. 8,584,589 (“Carlson”) was filed on October 6, 2010. Carlson’s “invention relates to [] toy projectiles” with a “projectile 100” that can be made of “dehydrated gels, *a hydro-polymer (similar to the absorbent polymer material used in a diaper)*, and a sponge material that is compressed and

dehydrated.” Ex.1039, 1:13-14_,3:44-56. A POSITA would have known that “hydro-polymer” using the absorbent material from a diaper is an SAP. Ex.1005, ¶87; Ex.1001, 3:37-44 (’282 Patent acknowledging SAPs “are commonly used in personal disposable hygiene products such as diapers”). Carlson invented an SAP launcher for the same reason set forth in the ’683 Patent: a safer, better performing toy ammo. Ex.1039, 1:17-28, 1:51-54, 3:37-40 ; Ex.1001, 1:49-62, 2:3-5, 3:10-13; Ex.1003, ¶¶195-196.

By December 20, 2010, Vat19 posted a video to YouTube featuring DuneCraft Spitballs—the same product described in the ThinkGeek listing (Ex.1007)—and depicting two men launching Spitballs at each other. Ex.1029; Ex.1003, ¶197. The video explains, “Spitballs are fascinating little projectiles perfect for launching at just about anything,” while inserting a Spitball into a straw and launching it at his colleague. Ex.1029. The video explains that how long you leave them in is up to you, and that adjusts the size:



Id. “Bigger Spit Balls will explode easily,” “while smaller Spit Balls are durable and bouncy.” *Id.* “They’re also perfect for shooting from a straw or tube.” *Id.*



The idea of launching hydrated SAPs, including via slingshots and guns, was regularly expressed by ordinary people who had no background in industrial engineering or toy design after they were shown a hydrated SAP. In a YouTube

video posted in November 2009, a user shows hydrated “Liquid Marbles” (i.e., hydrated SAPs). Ex.1030. A user commented on February 19, 2010, before the earliest claimed priority date:



r3mote 13 years ago

oh I am so getting these for my slingshot :))



Reply

Ex.1031; Ex.1003, ¶198.

Children with no skill in the art also conceived of launching hydrated SAPs with previously known launchers. In a YouTube video titled “What do you do with Orbeez?” on September 10, 2010, children’s ideas for what to do with the Orbeez—a hydrated SAP toy (Ex.1003, ¶199; Ex.1032)—were filmed. Ex.1033. One child suggests “a gun.” and another says “Bazooka!” *Id.* One of the named inventors, Ronald Brawer, gave an interview in which he acknowledged that children “nearly universal[ly]” proposed shooting hydrated SAPs: “For the boys, the response was nearly universal: ‘These are paintballs,’ they would say. ‘We want to shoot them,’” Brawer said.” Ex.1034, 6. Given that children with no skill in the art thought to combine hydrated SAPs with launchers, including guns, that idea, including as expressed in the Challenged Claims, would have been obvious to a POSITA. Any other secondary considerations evidence is weak and does not overcome the clear case of obviousness here. “In order to accord substantial weight to secondary

considerations in an obviousness analysis, the evidence of secondary considerations must have a ‘nexus’ to the claims, i.e., there must be a ‘legally and factually sufficient connection’ between the evidence and the patented invention.” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019). There was a launcher product, Xploderz, that was sold by a company affiliated with the original assignee of the ’683 Patent which failed in the marketplace shortly after it was introduced in 2012. Patent Owner may allege that this product practiced one or more of the Challenged Claims and that it was “praised” and/or “commercially successful.” The advertising for Xploderz potentially suggested that consumers might be driven to purchase certain of these launchers because of their (1) use of SAPs as ammunition, (2) in some cases, their ability to shoot more than 50 feet, and (3) the ability to hold more ammo (*e.g.*, 70+ rounds). But these features are not claimed, are prior art features, or both, and therefore have no nexus to the claims. *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006) (“[I]f the feature that creates the commercial success was known in the prior art, the success is not pertinent.”); *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997) (same).

First, Patent Owner cannot establish that any device that is allegedly praised or commercially successful practices the claims, such that there is no nexus.

Second, use of SAPs as ammunition cannot supply a nexus because SAP ammunition was in the prior art. *See* §IX.A, IX.G; Ex.1003, ¶¶200-202.

Third, the distance shot is not claimed. Ex.1003, ¶202. And the distance fired is driven by century-old air gun mechanisms (the spring, piston, and air compression chamber). *Id.* Even if there were success/praise, and even if it were driven by the distance fired, there is no nexus between distance and any of the Challenged Claims. *Id.* Further, the shooting distance is based on the force generated by the spring, piston, and air compression chamber that launched the product. Using these components to generate air pressure and fire a projectile over long distances was well-known in the art. Section IX.B-IX.F, X.B.9-10; Ex.1051, 11-12 (teaching “Electric air” airsoft guns with springs, pistons, and air compression chambers that shoot “99 yards”); Ex.1003, ¶202.

Fourth, the ability to hold more ammo (upwards of 70 rounds) is not claimed. In fact, all that is required in *any* Challenged Claim is a “plurality” (2 or more) SAP projectiles. Ex.1001, Cls. 1-14. Further, launchers that had magazines with large ammo capacity were ubiquitous in the prior art. Ex.1009, Figs. 12-14, 17, 19-21 (depicting magazines with substantial ammo capacity); Ex.1051, 11-12 (“Ammo Capacity” of “100”); Ex.1003, ¶203; Ex.1009 Figs. 12-14, 17, 19-21; Ex.1051, 11-12 (“Ammo Capacity” of “100”). Accordingly holding 2 or more rounds (or even 70+), is a prior art feature. Ex.1003, ¶203.

Further, there are numerous unclaimed features and Patent Owner cannot show that any success/praise is due to allegedly novel features as opposed to unclaimed and prior art features of the devices (*e.g.*, full-auto shooting, large ammo capacity, ornamentation/design, advertising, business acumen). Articles discussing Xploderz are actually marketing materials supplied *by the Xploderz manufacturer*, not industry participants, and are irrelevant. And any “awards” won by Xploderz are irrelevant because there is no indication of what criteria was used, the number of applicants, whether the Xploderz maker paid to win the “award,” or any other relevant information.

Patent Owner may attempt to rely on a license taken by Hasbro. But taking a license merely to avoid litigation expense or for business purposes, as opposed to out of respect for the strength of the patent, is not evidence of nonobviousness. *Siemens Mobility, Inc. v. Iancu*, 825 F. App’x 867, 873 (Fed. Cir. 2020) (“Successful licensing is not an ‘infallible guide to patentability.’ ...Parties may enter into licenses because of business judgments, to avoid litigation, and for other reasons unrelated to obviousness.”).

Petitioners are not aware of evidence of copying. “Copying requires duplication of features of the patentee’s work based on access to that work, lest all infringement be mistakenly treated as copying.” *Institut Pasteur & Universite*

Pierre Et Marie Curie v. Focarino, 738 F.3d 1337, 1347-48 (Fed. Cir. 2013).

Petitioners did not know about the challenged patents until well after it had developed its own technology and launchers.

Here, the “weak secondary considerations [] do not overcome a strong prima facie case of obviousness.” *Genentech, Inc. v. Sandoz, Inc.*, 55 F.4th 1368, 1378 (Fed. Cir. 2022).

Petitioners’ counsel, but not Petitioners, is aware of arguments by Patent Owner regarding secondary considerations that Patent Owner designated confidential under the protective order in the ITC Action Case. As such, Petitioners’ counsel is advancing those arguments here. To the extent Patent Owner raises them, Petitioner reserves the right to introduce, in rebuttal, responsive materials that may currently be designated confidential in the ITC Case.

D. The Board Should Institute IPR

1. 35 U.S.C. § 314(a)

The merits of this Petition are strong, which alone warrants institution. On June 21, 2022, Director Vidal issued an interim procedure regarding application of the *Fintiv* factors clarifying that “the PTAB will not deny institution [] under *Fintiv* (i) when a petition presents compelling evidence of unpatentability.” Director Vidal, Memorandum, “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation” (“Vidal Memo”), 9 (June 21,

2022). Here, each ground in the Petition presents compelling evidence of unpatentability. For example, Ground I is a single-reference anticipation ground explaining how Spitballs anticipates or, at a minimum, renders obvious alone many of the Challenged Claims. This evidence, “if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable” (*id.*, 4) and the Board must decline to exercise its discretion under §314(a). *Id.*; *PopSockets LLC v. Flygrip, Inc.*, IPR2022-00938, Paper 8 (P.T.A.B. Nov. 1, 2022).

Further, with respect to the ITC Case, “the PTAB will not deny institution of an IPR [] under *Fintiv* ... when a request for denial under *Fintiv* is based on a parallel ITC proceeding.” Vidal Memo, 9. With respect to the District Court Case, that case is a non-patent action for injunctive relief, wherein Hasbro, Inc. filed a counterclaim against Gel Blaster, Inc. alleging infringement of the ’683 Patent. *See Gel Blaster, Inc. v. Hasbro, Inc.*, Case No. 1:22-cv-00828, Dkt. 15, at 40-41 (W.D. Tex. Oct. 11, 2022). Petitioner is not a party to the District Court case, which “weighs against denying institution.” *TCO AS v. NCS Multistage Inc.*, 2021 WL 662165, at *7 (P.T.A.B. Feb. 18, 2021). There are currently no invalidity challenges in the District Court Case, so there is no overlap between issues raised in this Petition and in the District Court Case and no indication that the court or the parties have made significant investment in Hasbro’s counterclaim. Further, Gel Blaster moved to stay Hasbro’s counterclaim and there is no trial date set. Finally, “other circumstances”

weigh against discretionary denial. Where, as here, “the information presented at the institution stage presents a compelling unpatentability challenge, that determination alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*[.]” Vidal Memo, 4-5.

2. 35 U.S.C. § 325(d)

The Board should likewise not deny institution under §325(d) because all six Becton Dickinson factors weigh in favor of institution. *Becton, Dickinson, & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (P.T.A.B. Dec. 15, 2017); *see also Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (P.T.A.B. Feb. 13, 2020).

The Board has consistently “held that a reference that ‘was neither applied against the claims nor discussed by the Examiner’ does not weigh in favor of exercising ... discretion under §325(d).” *Fasteners for Retail, Inc. v. RTC Indus., Inc.*, IPR2019-00994, Paper 9 at 7-11 (P.T.A.B. Nov. 5, 2019). Here, none of the references cited in this Petition were even before the Examiner, much less discussed and applied by the Examiner. Moreover, the arguments presented herein are not the same or substantially the same as those considered during prosecution—there were *no* substantive arguments during prosecution. “Here, the Examiner did not consider [] the grounds asserted in the Petition” and therefore “there [is] no overlap between

arguments made during examination and in the Petition.” *Bowtech*, Paper 14 at 5-6.

Indeed, no art-based rejections were made during prosecution of the ’282 Patent.

3. Gel Blaster’s Petition Does Not Warrant Denying Institution

The instant Petition is Petitioners’ first and only petition challenging the ’683 Patent. Gel Blaster and Petitioners are unrelated companies with no significant relationship, are not privy to each other’s IPR plans and have not cooperated or even discussed IPR filings with each other. This Petition presents different prior art and different grounds from the Gel Blaster petition. *See Gel Blaster, Inc. v. Spin Master, Inc.*, IPR2023-00302, Paper 2 (P.T.A.B. Dec. 5, 2022). Further, Patent Owner has not filed a response to Gel Blaster’s petition, so “no roadmap of Patent Owner’s position” is available. *NetNut Ltd. v. Bright Data Ltd.*, IPR2021-00458, Paper 11, at 13 (P.T.A.B. Aug. 12, 2021). Petitioners learned of the prior art asserted herein in October 2022. “[T]he references were not raised in a prior petition or proceeding before the Office” and, thus, Petitioners have not excessively delayed in filing this Petition. *Google LLC v. Realtime Adaptive Streaming LLC*, IPR2019-01037, Paper 9, at 20 (P.T.A.B. Dec. 4, 2019) (finding “approximately five month gap from the invalidity contentions to filing of the Petition” did not weigh in favor of denial). Further, Petitioners are small companies with limited resources and have been embroiled in the ITC Case wherein Patent Owner asserted an inordinate amount of claims against Petitioners. Finally, “any burden on the Board of reviewing a second

Petition challenging a patent previously challenged is outweighed by Petitioner's desire to challenge Patent Owner's patent, given that Patent Owner has filed a lawsuit against Petitioner for patent infringement." *Google*, IPR2019-01037, Paper 9, at 21. And "Petitioner[s] did not delay filing until after an *inter partes* review was instituted on [Gel Blaster's] petition, and, thus, the two proceedings would not proceed with schedules as divergent as in *Valve*," institution of this Petition would not waste the Board's resources. *Foursquare Labs, Inc. v. Mimzi, LLC*, IPR2019-01287, Paper 11, at 12 (P.T.A.B. Jan. 4, 2020). In light of the foregoing, the *General Plastic* factors weigh strongly against discretionary denial. *Xilinx, Inc. v. Arbor Global Strategies, LLC*, IPR2020-01568, Paper 12 at 10 (P.T.A.B. Mar. 5, 2021).

In addition, Gel Blaster is a counterclaim-defendant in the District Court Case while Petitioner is not. Further, it is possible that Gel Blaster will settle their litigation disputes with Patent Owner while Petitioner will not. If the instant Petition is not instituted, Petitioner would be severely prejudiced if Gel Blaster later sought to terminate its petition (as a result of settlement or otherwise), which also weighs against discretionary denial. *Apple Inc. v. Uniloc 2017 LLC*, IPR2019-01667, Paper 7, at 11-12 (P.T.A.B. Apr. 21, 2020).

DATED: March 24, 2023

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH WORD COUNT

This Petition complies with the type-volume limits of 37 C.F.R. § 42.24(a)(1)(i) because it contains 13,999 words, excluding the parts of this Petition that are exempted by 37 C.F.R. § 42.24(a), according to the word-processing system used to prepare this Petition.

/s/ Gianni L. Cutri

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that I caused to be served on March 24, 2023, a true and correct copy of the foregoing PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104 by overnight carrier to the Patent Owner at the correspondence address of record for the Patent Owner as follows:

Stephen Ashley
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Brookfield Place
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A courtesy copy of the foregoing was also served on the counsel of record for Patent Owner in the related International Trade Commission case via email at the following address:

spinmaster_1325@eriseip.com

/s/ Gianni L. Cutri
Gianni L. Cutri