Trials@uspto.gov
571-272-7822

Paper 41
Date: October 10, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PRIME TIME TOYS LLC, PRIME TIME TOYS LTD.,
and EASEBON SERVICES LTD.,
Petitioner,

v.

SPIN MASTER, INC.,
Patent Owner.

IPR2023-01461
Patent 8,596,255 B2

Before HYUN J. JUNG, NEIL T. POWELL, and BRENT M. DOUGAL,
Administrative Patent Judges.

JUNG, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6 (2024). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 (2024). For the reasons that follow, we determine that Prime Time Toys LLC, Prime Time Toys Ltd., and Easebon Services Ltd. (collectively "Petitioner") have not shown by a preponderance of the evidence that claims 1, 2, 13, and 15–20 of U.S. Patent No. 8,596,255 B2 (Ex. 1001, "the '255 patent") are unpatentable.

A. Background and Summary

Petitioner filed a Petition (Paper 2, "Pet.") requesting institution of an *inter partes* review of claims 1, 2, 13, and 15–20 of the '255 patent. Spin Master, Inc. ("Patent Owner") filed a Preliminary Response. Paper 8. Pursuant to 35 U.S.C. § 314, we denied institution of *inter partes* review in this proceeding (Paper 10), and Petitioner requested that the Director review the Decision Denying Institution (Paper 11). The Director reversed our Decision Denying Institution and remanded the proceeding to institute *inter partes* review. Paper 12, 21. We instituted an *inter partes* review of claims 1–5 and 8 of the '255 patent on all presented challenges. Paper 14, 2, 6.

After institution, Patent Owner filed a Response (Paper 20, "PO Resp."), to which Petitioner filed a Reply (Paper 23, "Pet. Reply"), and Patent Owner thereafter filed a Sur-reply (Paper 30, "PO Sur-reply"). An oral hearing in this proceeding was held on May 16, 2025; a transcript of the hearing is included in the record. Paper 35.

B. Real Parties in Interest

Petitioner identifies Prime Time Toys LLC, Prime Time Toys Ltd., and Easebon Services Ltd. as real parties in interest. Pet. 8. Patent Owner

identifies Spin Master, Inc. and Hasbro, Inc. as real parties in interest. Paper 6, 2.

C. Related Matters

The '255 patent issued from a continuation-in-part of an application that is now U.S. Patent No. 8,371,282 (Ex. 1025, "the '282 patent"). Ex. 1001, code (63); *see also* Pet. 3 (noting the '282 patent). U.S. Patent No. 8,640,683 ("the '683 patent") issued from a divisional of the application that is now the '282 patent. *See* Pet. 9 (identifying the '683 patent).

The parties indicate that the related '282 and '683 patents are at issue in *In the Matter of Certain Soft Projectile Launching Devices, Components Thereof, Ammunition, and Products Containing Same*, Investigation No. 337-TA-1325 (ITC). Pet. 9; Paper 6, 2. According to the parties, the same related patents have been involved in district court litigation and *inter partes* reviews, most of which are no longer pending. Pet. 9–10; Paper 6, 2–3.

The '282 patent is challenged in IPR2023-01348, and the '683 patent is challenged in IPR2023-01339. Pet. 9–10; Paper 6, 2–3.

D. The '255 Patent (Ex. 1001)

The '255 patent issued on December 3, 2013 from an application filed on December 20, 2010 that is a continuation-in-part of an application filed on May 10, 2010. Ex. 1001, codes (22), (45), (63), 1:7–10.

The '255 patent describes using a super absorbent polymer ("SAP") as ammunition in projectile launching devices to provide advantages compared to projectiles that were previously known, such as paint balls, plastics (e.g., as found in "airsoft" guns), and foams (e.g., as found in NERF® guns). Ex. 1001, 1:23–2:3, 3:18–28, 3:59–62, 4:62–5:34. For example, certain SAP

projectiles have beneficial characteristics, in part because SAPs break down at different pressures based on their composition. *Id.* at 5:12–13. Hydrated SAP projectiles can be made to have sufficient cross-linking density such that they are projected from a projectile launching device without breaking apart. *Id.* at 3:26–28, 5:2–5. At the same time, because hydrated SAP projectiles rupture when subjected to excessive pressure, such as when impacting a target after being launched from a projectile launcher, the force at impact is spread over a much wider surface area, thus reducing the likelihood of injury when the target is a person. *Id.* at 3:59–62, 5:8–11.

E. Illustrative Claim

The '255 patent includes 20 claims, of which Petitioner challenges claims 1, 2, 13, and 15–20. Of the challenged claims, claims 1 and 13 are independent and reproduced below is claim 1.

> 1. A device for projecting a soft-projectile made from a super absorbent polymer, the device comprising:
>
> a feed chamber including a plurality of soft-projectiles having the same shape, each soft-projectile being formed from a hydrated super absorbent polymer, wherein the device is adapted to load a soft-projectile from the feed chamber to a firing position;
>
> a firing mechanism operatively arranged to accelerate the soft-projectile made from a super absorbent polymer, from the firing position, down a barrel; and
>
> a safety mechanism obstructing an end of the barrel and designed to prevent access to the interior of the barrel but allow a soft-projectile accelerated by the firing mechanism to exit the barrel.

Ex. 1001, 18:22–35.

As Petitioner notes, "Independent Claim 13 includes the same limitations as Claim 1, except that Claim 13 does not require the safety mechanism." Pet. 1; Ex. 1001, 19:7–16.

F. Asserted Prior Art and Proffered Testimonial Evidence

Petitioner identifies the following references as prior art in the asserted grounds of unpatentability:

Name	Reference	Exhibit
Moorhouse	US 4,834,059, issued May 30, 1989	1006
Peev	BG 110343, published July 31, 2009	1003[1]
Spitballs	ThinkGeek Spitballs Internet Archive Webpage, Nov. 30, 2009	1002[2]

Petitioner contends that Peev and Spitballs are prior art under § 102(a) and that Moorhouse is prior art under § 102(b).[3] Pet. 12, 16.

Petitioner also provides a Declaration of Mr. Joel Delman (Ex. 1016, "Delman Declaration"), Dr. Maureen T. F. Reitman, Sc.D., F.S.P.E., P.E. (Ex. 1017, "Reitman Declaration"), and a Rebuttal Declaration of Dr. Amy Courtney, Ph.D., CAISS (Ex. 1037).[4]

---

[1] Exhibit 1003 includes an English language translation. Ex. 1003, 22–41.
[2] Exhibit 1002 includes a declaration from the Records Request Processor at the Internet Archive (Ex. 1002, 1–2), as well as multiple copies of the Spitballs webpage and related category pages (*id.* at 5–28).
[3] The relevant sections of the Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284 (Sept. 16, 2011), took effect on March 16, 2013. Because the '255 patent issued from an application filed before that date, our citations to 35 U.S.C. §§ 102 and 103 are to their pre-AIA versions. *See also* Pet. 12 (noting that "[t]he earliest date of invention claimed [in the ITC proceeding] was February 21, 2010").
[4] We note that Patent Owner argues that Petitioner filed new testimony on deformation and fragmentation from a declarant with entirely different kind of expertise and that testimony comes from a declarant that has not been alleged to be a person of ordinary skill in the art. PO Sur-reply 14 (citing Ex. 1037 ¶¶ 15, 16, 33–66, 75, 76). Patent Owner contends that the declarant does not meet its proposed level of ordinary skill in the art. *Id.* at 14–15 (citing Inst. Dec. 7; Ex. 1037 ¶¶ 50, 52, 55, 56, 61, 63, 68, 69, 70, 74, 76). Patent Owner also contends that the opinion is "based on insufficient

Patent Owner provides a Declaration of Dr. Barry Matthew Kudrowitz (Ex. 2015). Deposition transcripts for Dr. Reitman (Ex. 2030), Dr. Courtney (Ex. 2121), and Dr. Kudrowitz (Ex. 1036) were filed.

G. Asserted Grounds

Petitioner asserts that claims 1, 2, 13, and 15–20 are unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	References/Basis
13, 15–20	103(a)	Peev, Spitballs
1, 2	103(a)	Peev, Spitballs, Moorhouse

II. DISCUSSION

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent [claim] it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). This burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail in an *inter partes* review, the petitioner must support its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

A claim is unpatentable as obvious under 35 U.S.C. 103(a) if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the

---

facts, data, and methodology," because only a limited subset of documents were considered. *Id.* at 15–16 (citing Pet. 23; Ex. 1017 ¶¶ 18–70; Ex. 1037 ¶¶ 4–5, 27, 51, 55; Ex. 2121, 21:17–22:14, 30:12–31:8, 33:8–13, 34:1–38:9, 44:8–45:22, 60:16–62:14).

time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of obviousness or nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A. Level of Ordinary Skill in the Art

Petitioner does not propose expressly a level of ordinary skill in the art. Pet. 21–23. Petitioner discusses three proposals by Petitioner, Patent Owner, and the Commission Investigative Staff in the related ITC proceeding. *Id.* at 21–22 (citing Ex. 1015 (Order No. 28: Construing Certain Terms of the Asserted Claims (*Markman* Claim Construction)), 7–8).

Petitioner argues that the three proposals "are similar." Pet. 22. Petitioner also notes that the Administrative Law Judge ("ALJ") in the ITC proceeding determined that "[a]ny differences among the definitions will have little, if any, effect on the claim construction analysis" and that "all of the proposals are appropriate." *Id.* at 22–23 (citing Ex. 1015, 8). At the institution stage, we adopted Patent Owner's proposed level of ordinary skill in the art from the ITC proceeding. Paper 10, 7.

The parties do not address the adopted level of ordinary skill in the art. *See* PO Resp.; Pet. Reply; PO Sur-reply. Based on the full record, we maintain and affirm that one of ordinary skill in the art would have had:

> a bachelor's degree in mechanical engineering, industrial design, or equivalent, with at least one year of relevant experience designing projectile launching systems but would also be a member of a team, which would include a person with a

> bachelor's in materials science, chemistry, or equivalent (e.g., chemical engineering), or has at least one year experience working with materials for use in consumer products

and that "equivalent work experience may substitute for educational experience, and vice versa." Pet. 21–22 (quoting Ex. 1015, 7–8); *see also* Ex. 1016 ¶ 55 (stating that "Patent Owner's and Petitioner's definitions of the [person of ordinary skill in the art] are similar, and my opinions in this Declaration would not change if I used Patent Owner's definition of the [person of ordinary skill in the art] rather than Petitioner's definition"). We find that the proposed level of ordinary skill in the art is consistent with the '255 patent and the asserted prior art.

B. Claim Construction

In an *inter partes* review, the claims are construed

> using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Neither Petitioner nor Patent Owner proposes any interpretation for any claim term. Pet. 23; *see* PO Resp. Petitioner notes that the ALJ in the ITC proceeding construed two terms used in the '282 and '683 patents, specifically "super absorbent polymer" and "a firing mechanism that directly applies a force to the ammunition." Pet. 23 (citing Ex. 1015, 12, 14).

Based on the full record, we determine that no term requires express construction to resolve the parties' dispute. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to

construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

C. Asserted Obviousness Based on Peev and Spitballs

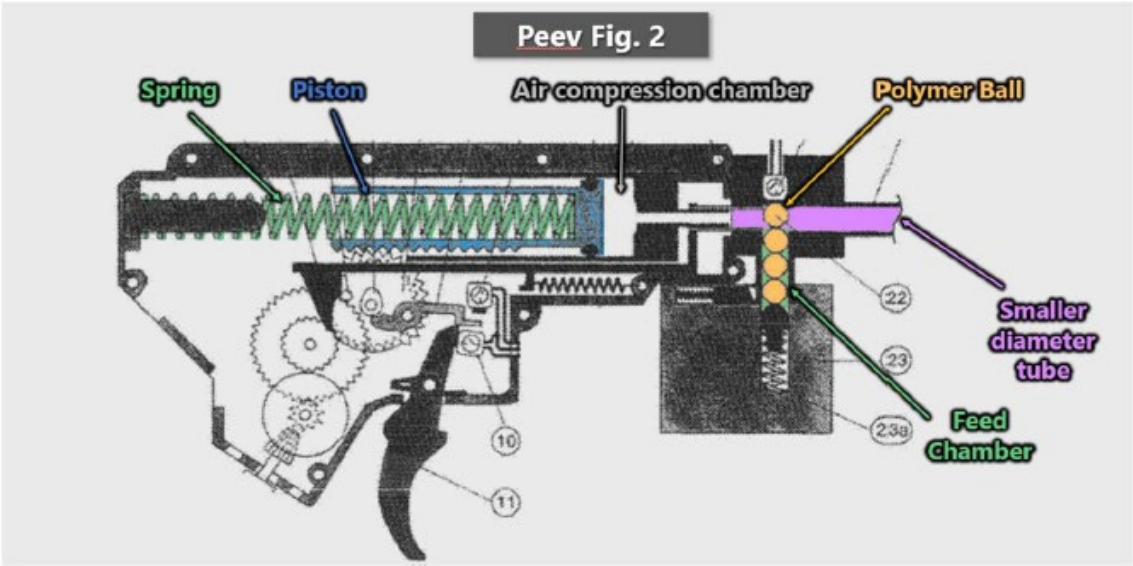
For the reasons below, we determine that Petitioner fails to show by a preponderance of the evidence that Peev and Spitballs would have been combined for the reason asserted by Petitioner.

1. Peev (Ex. 1003)

Peev discloses an "electric airsoft gun [that] finds application in the sporting gun industry and is used for military simulations or training, or for entertainment in airsoft guns." Ex. 1003, code (57). An object of Peev is to "ensure that the operation and handling of the electric airsoft gun is as close as possible to the operation and handling of the real firearm." *Id.* at 27.[5] Peev describes electric airsoft guns as similar to real firearms, except they use compressed air to fire "polymer balls with a diameter of 6 mm," "instead of cartridges." *Id.* at 23.

Peev explains that electric airsoft guns include a barrel and a magazine, and to compress the air for launching balls, Peev discloses a mechanism with a piston and cylinder, a spring behind the piston, a reduction gear below the cylinder, and a sector gear in contact with a gear rack on the piston's outer surface. Ex. 1003, 23. Reproduced below is Petitioner's annotated Figure 2 from Peev. Pet. 41.

[5] An English-language translation is included with Peev. Ex. 1003, 22–41. We cite to the English-language translation, using the page numbers at the bottom of each page.



Peev's Figure 2, as annotated by Petitioner, shows a cross-section of an electric airsoft gun, with labels for a spring, piston, air compression chamber, feed chamber, smaller diameter tube, and polymer ball. Pet. 41; Ex. 1003, 29.

Peev's airsoft gun includes, among other components, sector wheel 5, trigger 11, switching lever 14, chamber 20, barrel 21, ball 22, magazine 23, electric motor 30, connecting plate 44, nozzle 45, spring 46, piston 47, and cylinder 48. Ex. 1003, 31–32, Figs. 1, 2. When a user presses trigger 11, electric motor 30 is activated, and sector wheel 5 retracts piston 47 and tightens spring 46. *Id.* at 31, Figs. 1, 2. Nozzle 45 retracts through connecting plate 44 to permit ball 22 to enter chamber 20 of barrel 21. *Id.* at 31–32. Nozzle 45 pushes ball 22 into barrel 21, and after ball 22 enters barrel 21, firing occurs as follows:

> At the moment when the last tooth of the sector wheel 5 wears the last tooth of the piston 47, the latter, under the pressure of the spring 46, accelerates forward and compresses the air in the cylinder 48, inserting it through the nozzle into the barrel 21 and firing the ball 22.

Id. at 32.

2. Spitballs (Ex. 1002)

Spitballs is a printout from the Wayback Machine that shows "Science Toys" sold by ThinkGeek. Ex. 1002, 4–8, 10–13. It lists a product named "Spitballs" and provides a "Main Description" for Spitballs. *Id.* at 4, 15–16, 18–19, 21–22, 24–25. Petitioner reproduces the below picture from Spitballs. Pet. 42.

The above picture from Spitballs shows the product packaging with the balls in a small state in the packaging and the balls presumably in a larger state outside of the packaging. The packaging also states "Fun to Throw!," "Grows 200x Their Size!," and "They Slip, Slide, Bounce & Explode!"

3. Claims 13 and 15–20.

Petitioner argues with citations to Peev, Spitballs, and the Delman Reitman Declarations that Peev and Spitballs teach or suggest the limitations

of independent claim 13. Pet. 40–45. Claims 15–20 each depend directly from claim 13 and recite further limitations regarding the feed chamber, diameter of the soft-projectiles, use of air pressure for launching the soft-projectiles, the firing mechanism, and the device being a toy or in the shape of a gun. Ex. 1001, 20:4–16. Petitioner argues with citations to the record that the combination of Peev and Spitballs teaches or suggests the additional limitations of claims 15–20. Pet. 45–48.

a) Rationale to Combine

Petitioner quotes that, "[w]hen there is a design need or market pressure to ***solve a problem*** and there are ***a finite number of identified, predictable solutions***, a person of ordinary skill has good reason to ***pursue the known options within his or her technical grasp***." Pet. 34 (quoting *KSR*, 550 U.S. at 421). Petitioner contends that one of ordinary skill in the art:

> (1) knew about the injury problem caused by airsoft guns (such as Peev), (2) knew one solution was to make the ammunition softer, (3) knew that there was prior art soft SAP ammunition available (Spit Balls) and few other alternatives, and (4) had the technical skill to combine this soft ammunition with Peev.

Id. at 39.

(1) "solve a problem"

Petitioner does not persuade us by a preponderance of the evidence that its asserted solution of making airsoft gun ammunition "softer" by using SAP would have solved the asserted injury problem caused by airsoft guns. Pet. 34–39. Petitioner argues that the "'squishy' and 'mushy' nature of the [Spitballs] projectile and the ability to 'explode' on impact will reduce the force of the impact, such that a [person of ordinary skill in the art] would have understood it is soft," thereby motivating the use of Spitballs in place

of the hard projectiles used in Peev. *Id.* at 42–43 (citing Ex. 1016 ¶¶ 84, 85; Ex. 1017 ¶ 49).

We agree with Patent Owner that Petitioner presents insufficient evidence that one of ordinary skill in the art would have expected Spitballs to be safer than conventional airsoft rounds merely because Spitballs are softer. PO Resp. 1. Petitioner cites to testimony that opines, based on the description of Spitballs found at the Internet Archive, one of ordinary skill in the art "would have understood that a 'squishy' sphere that bounces and can 'explode into mushy pieces' when it hits a target is a 'soft-projectile'" and that "[t]he 'squishy' and 'mushy' nature of the projectile and the ability to 'explode' on impact will reduce the force of the impact, such that a [person of ordinary skill in the art] would have understood it is soft." Ex. 1016 ¶ 84. This testimony does not address whether the force of impact would be considered safer in comparison to the projectile that Peev uses. *See id.* It also does not cite to any other evidence in the record that shows SAP rounds would have been expected to be safer than conventional airsoft rounds. *See id.*

Petitioner also cites to other testimony that opines one of ordinary skill in the art would have been motivated to use Spitballs in place of Peev's hard projectiles and that a hydrated SAP particle could have been tailored to desired softness, shape, and size. Ex. 1016 ¶ 85; Ex. 1017 ¶ 49. These additionally cited opinions do not address whether one of ordinary skill in the art would have expected Spitballs to be safer than conventional airsoft rounds. *See* Ex. 1016 ¶ 85; Ex. 1017 ¶ 49.

Patent Owner, on the other hand, argues and presents evidence that, in the combination proposed by Petitioner, Spitballs would have been more massive than airsoft rounds and would have increased the capacity to injure,

and that softer ammunition does not equate to safer ammunition, in the manner argued by Petitioner. PO Resp. 1, 13, 14–15. Patent Owner further argues that reduced injuries from Spitballs is not self-evident because Spitballs are explicitly designed to grow in size and weight as it absorbs water and, thus, able to carry more kinetic energy and cause more potential injury. *Id.* at 16 (citing Pet. 28; Ex. 1016 ¶¶ 68–69, 86; Ex. 1017 ¶¶ 54, 67; Ex. 2015 ¶ 59). Patent Owner, therefore, argues that, even if Petitioner had shown an injury problem with airsoft guns, one of ordinary skill in the art would not have considered Spitballs as a solution to that problem, because of its greater kinetic energy. *Id.* (citing Ex. 2015 ¶¶ 59, 62).

Patent Owner's declarant uses the sizes calculated by Petitioner's declarant Dr. Reitman and calculates that Spitballs with a 0.6 in diameter and a mass of 1.844g "are <u>more than 14 times heavier</u> than lightweight airsoft rounds" and "would have <u>more than 14 times</u> as much muzzle energy as a lightweight 0.12g airsoft round." Ex. 2015 ¶ 59.

We credit the testimony that the kinetic energy analysis done by Patent Owner's declarant is "a conventional approach for evaluating safety of projectile launching devices of all sorts." Ex. 2015 ¶¶ 56–58. The record supports that the same kinetic energy analysis would have been used to evaluate the safety of Petitioner's proposed modification of Peev to use Spitballs. Ex. 1019, 9, 10; Ex. 2016 ("The Airsoft Question and Answer Book"), 9; Ex. 2029 ("Standard Specification for Low Energy Air Guns (Less Than 1 Joule)"), 2, 3, 6; *see also* Ex. 1037 ¶ 35 (Petitioner's declarant stating that "[p]rior to 2010, it was known to a [person of ordinary skill in the art] that the damage/injury potential of a launched projectile is related to its kinetic energy" and that the "mass and velocity of a small projectile are relevant to injury potential"). Petitioner does not dispute that the kinetic

energy analysis is highly relevant to an evaluation of the safety of the proposed modification. *See* Pet. Reply.

We, therefore, credit the testimony that one of ordinary skill in the art "conducting this kind of basic muzzle energy analysis—a conventional, even industry standard technique at the time—would not have concluded that the polymer balls that Spitballs teaches are a safer form of ammunition simply because they are softer than lightweight airsoft rounds," because the record supports it. Ex. 2015 ¶ 59.

Petitioner, however, argues that Spitballs were a known safer ammunition because they bounced and exploded into parts on impact and Patent Owner's declarant ignores that Spitballs can scatter on impact, thereby reducing the potential for injury. Pet. Reply 8–10 (citing Pet. 37; PO Resp. 13–17; Ex. 1002, 15; Ex. 1037 ¶¶ 16, 56–63, 76; Ex. 2015 ¶¶ 42–43), 13–14 (citing Ex. 1002, 15; Ex. 1037 ¶¶ 64–66). Petitioner also argues that Patent Owner's witness conceded on cross-examination that breaking down on impact would reduce the likelihood of injury. *Id.* at 10–11 (citing Ex. 1036, 90:14–91:15, 93:14–22). Petitioner further argues that, when the deformability of the projectile is comparable to the deformability of the target, the projectile will deform, thereby increasing the contact area and reducing the kinetic energy per unit contact area. *Id.* at 11–12 (citing Ex. 1023; Ex. 1037 ¶¶ 51, 52, 59).

Even if Spitballs deformed, increased its contact area, and scattered on impact to reduce the kinetic energy per unit contact area, Petitioner does not provide sufficient evidence to determine if the reduction in kinetic energy would have been enough so that one of ordinary skill in the art would have considered Spitballs to be a solution to the asserted injury problem caused by airsoft guns. Pet. Reply 8–14; Ex. 1037 ¶¶ 16, 51, 52, 56–66, 76. The

cited testimonial evidence relates to Spitballs bouncing or exploding on impact and SAP deforming on impact to reduce kinetic energy. Ex. 1037 ¶¶ 16, 51, 52, 56–66, 76. The testimony, however, does not address if the reduction would have overcome the 14-fold increase in mass and kinetic energy over the airsoft round used by Peev. *See id.*; Ex. 2015 ¶ 59 (calculating that Spitballs with 0.6 in diameter and a mass of 1.844g "would have <u>more than 14 times</u> as much muzzle energy as a lightweight 0.12g airsoft round").

In other words, Petitioner does not squarely address the testimonial evidence that the softness of Spitballs would not have been equated with safety, because of its higher weight and kinetic energy. Ex. 2015 ¶¶ 44–55. We agree with Patent Owner that Petitioner does not assert fragmentation and deformation would have overcome the greater kinetic energy of the heavier Spitballs, and that Petitioner's declarant admitted such calculation was not done. PO Sur-reply 7 (citing Ex. 2121, 48:11–49:7); Ex. 2121, 48:11–49:7 (Petitioner's declarant testifying that calculations of how much kinetic energy is absorbed when Spitballs bounce or explode were not done). Petitioner's declarant also identified that back splatter can create an additional safety concern. Ex. 2121, 101:14–104:4.

We agree with Patent Owner that Petitioner failed to discuss the deformation and fragmentation of Spitballs in its Petition and declarations. PO Sur-reply 6 (citing Pet. Reply 10–11; Ex. 1037 ¶ 43). We also agree that Petitioner did not explain how one of ordinary skill in the art could have reliably assessed the safety of Spitballs and airsoft rounds. *Id.*; *see also* Ex. 2121, 47:1–48:10 (Petitioner's declarant testifying that experimentation would be the best way to quantify how much kinetic energy is absorbed through deformation and fragmentation of a given projectile).

Regarding 6 mm Spitballs, as argued by Patent Owner, its declarant focused on the mass and diameter calculations provided by Petitioner's declarant, and Petitioner has the burden to analyze a projectile other than the one disclosed in Spitballs, not Patent Owner. PO Sur-reply 10–11 (citing Pet. Reply 13; Ex. 1017 ¶ 67; Ex. 2015 ¶ 59). Petitioner failed to do such an analysis of a 6mm Spitball or SAP projectile.

Regarding Petitioner's reliance on deposition testimony from the ITC proceedings, as argued by Patent Owner, its declarant agreed that making ammunition softer would make injury less likely, *if all other parameters were equal*, not larger and heavier like a substitution with Spitballs. PO Resp. 16–17 (citing Pet. 37; Ex. 1004, 531:25–532:9; Ex. 2015 ¶¶ 60–61); Ex. 1017 ¶ 67 (Petitioner's declarant opining that Spitballs can "grow up to 200 times their original size" to reach a mass of 1.844g); Ex. 1037 ¶ 39 (Petitioner's declarant agreeing that "when all other variables are held constant, heavier is less safe, meaning injury potential is increased"); Ex. 2015 ¶¶ 54–59 (Patent Owner's declarant opining that heavier and softer ammunition can pose more injury risk); Ex. 2016, 11 (indicating that airsoft ammunition typically comes in weights from 0.12g to 0.25g).

We, thus, agree with Patent Owner that Petitioner fails to prove that the ordinarily skilled artisan would have viewed "Spitballs as a suitable and safer kind of airsoft ammunition," the "predicate to its motivation theory" and that one of ordinary skill in the art would not have been motivated to combine Peev and Spitballs because the proposed combination, as presented, "offered no predictable safety benefit." PO Resp. 17; PO Sur-reply 1.

Additionally, Patent Owner's other examples of softer ammunition support our determination that Petitioner fails to show sufficiently that merely making airsoft gun ammunition softer would have been a solution to

the asserted injury problem caused by airsoft guns. Patent Owner likens Spitballs to paintballs that are also softer than airsoft ammunition but have caused injuries that are more likely to result in hospitalization. PO Resp. 13 (citing Ex. 1019, 9; Ex. 2015 ¶¶ 42–58). The cited testimonial evidence discusses examples of softer projectiles, such as a potato from a potato gun and paintballs, that undercut Petitioner's assertion that "one solution was to make the ammunition softer." Pet. 39; Ex. 2015 ¶¶ 42–51. The cited testimony explains that softer ammunition is not safer ammunition, because of other considerations, particularly its weight. Ex. 2015 ¶¶ 42–51 (citing Ex. 1019, 8, 9; Ex. 2015 ¶¶ 42–51; Ex. 2016, 9, 11; Ex. 2116 ("Video Measurement of the Muzzle Velocity of a Potato Gun"), 1, 4, 11; Ex. 2117 ("Standard Specification for Paintballs Used in the Sport of Paintball" designated ASTM F1979–10), 1, 2, 3; Ex. 2118 ("Nonpowder Firearms Injuries to Children Treated in Emergency Departments"), 1, 5). We credit that testimony because the cited portions of the record support it.

The full record also shows that paintballs hit harder even though they are softer than plastic airsoft ammunition, as Patent Owner argues, because they are more massive and carry more kinetic energy. PO Resp. 13–15 (citing Ex. 1002, 21; Ex. 1017 ¶ 67; Ex. 2015 ¶¶ 54–59; Ex. 2016, 9); Ex. 2015 ¶¶ 54–59 (Patent Owner's declarant opining that heavier and softer ammunition can pose more injury risk); Ex. 2016, 9 ("paintballs . . . [are] going to hit harder in almost all cases."), 11 (indicating that airsoft ammunition typically comes in weights from 0.12g to 0.25g).

For the reasons discussed above, we agree with Patent Owner that Petitioner does not explain why Spitballs with its larger mass and more kinetic energy would have been safer (or why one of skill in the art would have considered them safer) than lighter plastic airsoft ammunition and that

Petitioner only addresses the softness of Spitballs. PO Resp. 15 (citing Ex. 1016 ¶ 76; Ex. 1017 ¶ 12; Ex. 2030, 16:13–21). Therefore, based on the full record, Petitioner fails to show that one of ordinary skill in the art would have expected Spitballs to be safer than conventional airsoft rounds merely because Spitballs are softer and fails to show that its asserted solution of making airsoft gun ammunition "softer" by using SAP would have solved the asserted injury problem caused by airsoft guns.

(2) "identified, predictable solutions"

For the reasons above, we determine that Petitioner fails to show that one of ordinary skill in the art would have expected Spitballs or SAP to be safer than conventional airsoft rounds. Petitioner also argues that one of ordinary skill in the art "knew that there was prior art soft SAP ammunition available (Spit Balls) and few other alternatives." Pet. 39. Petitioner does not persuade us by a preponderance of the evidence that SAP was an identified solution, because the record does not show it was a known alternative airsoft ammunition.

We find that neither Peev nor Spitballs teaches, suggests, or discloses that Spitballs or SAP were known, suitable, and safer alternatives to the conventional ammunition used in Peev's electric airsoft gun. We agree with Patent Owner that the full record lacks evidence that "highly absorbent spherical polymer balls like those in Spitballs had ever been used or contemplated . . . as a viable, much less 'safer,' kind of airsoft ammunition" or that they "were among a limited number of known alternatives to conventional plastic airsoft ammunition." PO Resp. 10 (citing Pet. 34–40).

We agree with Patent Owner that Petitioner fails to provide evidence that "Spitballs polymers were among the field of 'identified' prior art solutions to the alleged injury risk problem," and "Spitballs had ever been

used as ammunition for any type of gun that . . . Peev teaches." PO Resp. 12. We also agree that Petitioner fails to establish that "Spitball polymers were at least art-recognized 'suitable option.'" *Id.*

Thus, based on the full record, Petitioner fails to persuade us by a preponderance of the evidence that one of ordinary skill in the art considered Spitballs, or SAP, as one of a "number of identified, predictable solutions."

(3) "a finite number of identified, predictable solutions"

Petitioner also does not persuade us by a preponderance of the evidence that there were "a finite number of identified, predictable solutions." Petitioner argues that "[t]here was a finite number of ammunition options that a [person of ordinary skill in the art] could have considered that would have a reasonable expectation of success, including rubber, cork, foam, and soft plastics, such as SAPs." Pet. 38; Ex. 1016 ¶ 77.

As argued by Patent Owner, beyond hard plastics for airsoft ammunition, "the design space was vast" and "applicable industry standards . . . only <u>excluded</u> two kinds of potential ammunition—metallic objects and <u>liquid-filled objects like Spitballs</u>." PO Resp. 11 (citing Pet. 38; Ex. 1016 ¶ 77). The full record shows that the applicable standard required airsoft ammunition to be "spherical, of 6 mm (.24 cal) diameter, non-metallic and non-liquid filled" and the standard would have excluded ammunition with with water. *Id.* at 18 (citing Ex. 1002, 21; Ex. 1017 ¶ 62; Ex. 2015 ¶¶ 65–66); Ex. 2015 ¶¶ 65–66. Petitioner agrees with Patent Owner that the standard leaves open other materials. Pet. Reply 16.

In view of the applicable standard, we agree with Patent Owner that "many other compliant materials were readily available," and the standard shows that "the airsoft industry had turned <u>away from</u> liquid-filled projectiles like the Spitballs polymers." PO Resp. 19. As pointed out by

Patent Owner, Petitioner turns to a declarant that is not a chemist, and, thus, we give little weight to the opinion of Dr. Courtney on whether Spitballs would have been considered liquid filled by one of ordinary skill in the art. Pet. Reply 15–16; PO Sur-reply 18; Ex. 1037 ¶ 55; Ex. 2121, 61:12–13; *see also* PO Sur-reply 14–15 (arguing that Dr. Courtney does not meet the adopted level of ordinary skill in the art).

We agree with Patent Owner that Petitioner's list of "rubber, cork, foam, and soft plastics, such as SAPs" "does not exclude all of the other types of materials Petitioner failed to address—e.g., the gelatin materials used to make paintballs." PO Resp. 24 (citing Ex. 2117, 1). The "open-ended" list "has no meaningful evidentiary support" because the cited paragraphs from its declaration "make no reference at all to potential airsoft ammunition." Pet. 38; PO Resp. 24; Ex. 1016 ¶ 77; Ex. 1017 ¶¶ 36–39, 46–48. Petitioner's declarant Dr. Reitman also "acknowledged that airsoft considerations are beyond the scope of her testimony." Ex. 2030, 117:17–118:20. We agree with Patent Owner that Petitioner's list would include "countless distinct polymers." PO Resp. 25; Ex. 2120, 27–28.

Petitioner fails to respond to the asserted flaws in its arguments regarding a finite number of alternatives to conventional airsoft ammunition. Pet. 38; PO Resp. 23–25; Pet. Reply 16–17; PO Sur-reply 13. The full record indicates that, even if Spitballs were a type of airsoft ammunition, one of ordinary skill in the art would not have been presented with limited options. Also, for the reasons above, Petitioner fails to show Spitballs would have been considered a suitable option for airsoft ammunition and that Spitballs would have solved the asserted airsoft injury problem.

Based on the full record, Petitioner fails to provide evidence that "toy polymer balls" were ever used as ammunition for an airsoft gun and the

ordinarily skilled artisan would have considered such polymer balls "to be within the design space of suitable airsoft ammunition." PO Resp. 28–29. We, thus, determine that Petitioner fails to show that there were a "a finite number of identified, predictable solutions."

b) Alternative Rationales to Combine

Petitioner argues that one of ordinary skill in the art "would also have been motivated to combine Peev with Spitballs," and "Peev and Spitballs are in the same field of endeavor, namely, launchers and ammunition use for fun." Pet. 39–40 (citing Ex. 1016 ¶ 80); *see also id.* at 42–43 (arguing that one of ordinary skill in the art "would have been motivated to use the plurality of soft projectiles having the same spherical shape (Spitballs) in place of the plurality of hard projectiles of Peev having the same spherical shape") (citing Ex. 1016 ¶ 85; Ex. 1017 ¶ 49).

We agree with Patent Owner that the above-quoted rationales to combine are deficient. PO Resp. 31–32. As argued by Patent Owner, Petitioner's same field of endeavor arguments do not explain why one of ordinary skill in the art would have combined Peev and Spitballs. *Id.* at 31 (citing Pet. 39–40). The cited paragraphs of the Delman and Reitman Declarations likewise fail to explain why Peev and Spitballs would have been combined, because they merely opine that the two references are in the same field of endeavor, there would have been a motivation to combine without further explanation, and that SAP could have been tailored to a desired shape and size. Ex. 1016 ¶¶ 80, 85; Ex. 1017 ¶ 49.

We give little weight to the cited paragraphs of the Delman Declaration, because they lack record support. Ex. 1016 ¶¶ 80, 85. Petitioner also does not further address why one of ordinary skill in the art would have been motivated to combine Peev and Spitballs and why merely

being in the same field of endeavor provides a reason to combine the references. *See* Pet. Reply; *see also* Ex. 2007, 71 (determining that "it is not clear from the record that a person of ordinary skill would even likely start with an airsoft gun (or reference)").

Based on the full record, for the reasons above, we determine that insufficient argument and evidence support Petitioner's asserted motivation to combine. Pet. 39–40; Ex. 1016 ¶¶ 80, 85; Ex. 1017 ¶ 49.

> Petitioner additionally argues that one of ordinary skill in the art would have recognized combining air guns, such as Peev's toy gun with Spitballs' hydrated SAP projectiles, is a simple substitution of one known element (spherical hydrated SAP soft-projectiles) for another known element (Peev's spherical hard bullets) to obtain predictable results (a safer air gun that preserves the fun of the gun).

Pet. 40 (citing Ex. 1016 ¶ 81). Patent Owner responds, and we agree, that this alternative reason to combine is also deficient. PO Resp. 31–32.

As pointed out by Patent Owner, Petitioner's simple substitution argument fails because "Petitioner has not presented any credible evidence that ammunition for an airsoft gun was an 'established function' of a polymer product like the one taught by Spitballs." PO Resp. 32. The above-quoted argument from the Petition substantially repeats the cited paragraph from the Delman Declaration, and that paragraph does not provide any further explanation or cite any record evidence for support. Ex. 1016 ¶ 81. We, therefore, give no credit to that testimony. Petitioner also does not further address its simple substitution rationale. *See* Pet. Reply. Also, as discussed above, Petitioner fails to provide sufficient argument and evidence that Spitballs and SAP were known alternatives to the conventional ammunition used in Peev's electric airsoft gun.

Based on the full record, we determine that insufficient argument and evidence support Petitioner's asserted simple substitution rationale. Pet. 40; Ex. 1016 ¶ 81.

c) Simultaneous Invention

Petitioner argues that Korean Patent Publication No. 20-2010-0004855 to Kim (Ex. 1022) and a video from YouTube (Exs. 1023, 1024, "Vat19") are evidence of simultaneous invention supporting a finding of obviousness. Pet. 53–56 (citing Ex. 1016 ¶¶ 116–121). Patent Owner responds that neither discloses all claimed features, specifically that Kim does not disclose SAP and Vat 19 only shows Spitballs blown out of a tube. PO Resp. 38–40 (citing Pet. 53–56; Ex. 1004, 302:7–22; Ex. 1016 ¶¶ 116–118; Ex. 1022, 8; Ex. 1024; Ex. 2015 ¶¶ 236–239).

Petitioner replies that Kim shows that there was a safety problem and that softer ammunition was a possible solution and that Vat19 shows Spitballs exploding on contact with a person without harm. Pet. Reply 21–22 (citing Paper 12, 16–17; PO Resp. 38–39). Patent Owner replies that Kim and Vat19 do not disclose the claims and Petitioner does not dispute that. PO Sur-reply 22–23 (citing PO Resp. 38–39; Pet. Reply 21–22; Ex. 1022, 9; Ex. 2007, 100; Ex. 2015 ¶¶ 238, 239).

As discussed above, the full record does not support that one of ordinary skill in the art would have combined Peev and Spitballs for the reasons asserted by Petitioner. Petitioner's evidence of simultaneous invention does not overcome that deficiency.

We also agree with Patent Owner, and find, that neither Kim nor Vat19 discloses the limitations of the challenged claims. PO Resp. 38–40; PO Sur-reply 22–23; Ex. 1004, 302:7–22; Ex. 1022, 8, 9; Ex. 1024;

Ex. 2007, 100 (ALJ concluding "there is ***no*** disclosure that [Kim's] gel material is a SAP"); Ex. 2015 ¶¶ 236–239.

d) Petitioner Fails to Show by a Preponderance of the Evidence that Claims 13 and 15–20 are Unpatentable

Based on the full record and for the reasons above, Petitioner fails to show by a preponderance of the evidence that one of ordinary skill in the art would have combined Peev and Spitballs for the reasons asserted by Petitioner. Petitioner, therefore, fails to show by a preponderance of the evidence that claims 13 and 15–20 are unpatentable over Peev and Spitballs.

D. Asserted Obviousness Based on Peev, Spitballs, and Moorhouse

Petitioner contends with reference to its arguments for claim 13 and citations to the Delman and Reitman Declarations that Peev and Spitballs teach or suggest substantially all the limitations of claim 1. Pet. 49–51. Petitioner relies on Moorhouse for teaching or suggesting the recited "safety mechanism." *Id.* at 51–52. Petitioner also argues with citations to the record that Peev discloses the subject matter of claim 2. *Id.* at 52–53.

Regarding the reason to combine the references, Petitioner argues that "[t]he motivation to combine Peev and Spitballs is discussed above and includes reducing the risk of injury and the fact that Peev and Spitballs are in the same field of endeavor, namely, projectile launchers and ammunition used for fun." Pet. 49. As discussed above, Petitioner does not provide a sufficient motivation to combine and merely being in the same field of endeavor fails to show a reason to combine.

Petitioner also argues that one of ordinary skill in the art "seeking to reduce the risk of injuries would be motivated to use one or more of the safety features described in Moorhouse." Pet. 49 (citing Ex. 1006, 1:10–65; Ex. 1016 ¶ 104). Petitioner similarly argues in its mapping of the limitations

to the references that it would have been obvious "to utilize the safety mechanism of Moorhouse in the device of Peev to reduce the risk of injury and for the other reasons provided above" for the asserted motivation to combine. *Id.* at 52 (citing Ex. 1016 ¶¶ 112, 113). Petitioner's additional reason to combine further with Moorhouse does not overcome the deficiencies of its proposed combination of Peev and Spitballs.

Thus, for the reasons above, Petitioner fails to show that claims 1 and 2 are unpatentable over Peev, Spitballs, and Moorhouse.

III. CONCLUSION

In summary:

Claims	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
13, 15–20	103(a)	Peev, Spitballs		13, 15–20
1, 2	103(a)	Peev, Spitballs, Moorhouse		1, 2
Overall Outcome				1, 2, 13, 15–20

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, 13, and 15–20 of U.S. Patent No. 8,596,255 B2 have not been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

FOR PETITIONER:

Kenneth P. George
Brian A. Comack
AMBER, ROTHSTEIN & EBENSTEIN LLP
kgeorge@arelaw.com
bcomac@arelaw.com

FOR PATENT OWNER:

Kenneth W. Darby
Linhong Zhang
Ethan Rubin
FISH & RICHARDSON PC
IPR50745-0005IP1@fr.com
kdarby@fr.com
lwzhang@fr.com
rubin@fr.com

Jennifer C. Bailey
Megan Redmond
ERISE IP, P.A.
jennifer.bailey@eriseip.com
megan.redmond@eriseip.com
PTAB@eriseip.com