

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NXTGEN TOYS, LLC,
PETITIONER,

v.

ZIPSTRING, LLC,
PATENT OWNER.

Case IPR2024-01213
Patent 11,674,774

**PETITIONER'S SUR-REPLY TO PATENT OWNER'S REPLY TO
OPPOSITION OF THE CONTINGENT MOTION TO AMEND**

TABLE OF CONTENTS

I.	ARGUMENTS	1
A.	Substitute Claims 21-26 and 28 are rendered Obvious Over Wagner in view of Yeany and Scorch (Grounds 3 and 4 in the Petition)	1
B.	Substitute Claims 25, 26 and 28 are rendered Obvious Over Abello in view of Yeany (Ground 2 in the Petition).....	3
C.	Indefiniteness of Substitute Claim 25	6

LIST OF EXHIBITS

Exhibit 1001	U.S. Patent No. 11,674,774 (“the ’774 patent”)
Exhibit 1002	Declaration of Dr. Barry Kudrowitz
Exhibit 1003	CV for Dr. Barry Kudrowitz
Exhibit 1004	B. Yeany, String shooter-String launcher – physics of toys – Homemade Science with Bruce Yeany, YouTube video, June 11, 2014 (available at https://www.youtube.com/watch?v=rffAjZPmkuU) (“Yeany”)
Exhibit 1005	Abello, Margaux, <i>et al.</i> , String Shooter’s Overall Shape in Ambient Air, Volume 4, <i>Emergent Scientist</i> , 1-8, January 14, 2020 (“Abello”)
Exhibit 1006	Daerr, Adrian, <i>et al.</i> , The Charmed String: Self-Supporting Loops Through Air Drag, Volume 877, <i>Journal of Fluid Mechanics</i> , 1-12, August 20, 2019 (“Daerr”)
Exhibit 1007	Scorch Works, String Shooter, YouTube video, July 4, 2018 (available at https://www.youtube.com/watch?v=IGIDy-IJxmo) (“Scorch”)
Exhibit 1008	U.S. Patent No. 6,537,126 to Wagner (“Wagner”)
Exhibit 1009	C.C.L. Gregory, Theory of a loop revolving in air, with observations on the skin-friction, Q. J. Mech. Appl. Math. 2 (1949) (“Gregory”)
Exhibit 1010	Sunita Sharma, <i>et. al.</i> , <i>Yarn Hairiness Determination Using Image Processing</i> , IOSR Journal of Electronics and Communication Engineering, Volume 11, Issue 5, Ver. II (Sep.-Oct. 2016), pages 48-52 (“Sharma”)
Exhibit 1011	Anderson, Fundamentals of Aerodynamics, Sixth Edition, published by McGraw-Hill Education, 2017 (“Anderson”)
Exhibit 1012	G. K. Tyagi, <i>Yarn structure and properties from different spinning techniques</i> , Chapter 5 of Advances in Yarn Spinning Technology, pages 119-154, published by Woodhead Publishing Limited, 2010 (“Tyagi”)

Exhibit 1013	Screen shot taken at 6 minutes and 54 seconds into video from d’Art of Science, How to make a String Shooter? DIY String <i>Shooter</i> <i>dArtofScience</i> , YouTube video, June 29, 2018 (available at https://www.youtube.com/watch?v=bsZ93j_nUVc&t=283s) (“d’Art of Science”)
Exhibit 1014	Print out of Yeany Youtube webpage (printed from https://www.youtube.com/watch?v=rffAjZPmkuU)
Exhibit 1015	Print out of Scorch Youtube webpage (printed from https://www.youtube.com/watch?v=IGIDy-IJxmo)
Exhibit 1016	Print out of d’Art of Science Youtube webpage (printed from https://www.youtube.com/watch?v=bsZ93j_nUVc&t=283s)
Exhibit 1017	First Amended Complaint in <i>ZipString, LLC v NxtGen Toys, LLC</i> , case 1:24-cv-00136-TCB, filed on April 8, 2024
Exhibit 1018	Prosecution history of the ’774 patent
Exhibit 1019	Copy of ZipString Youtube webpage, <i>The Science of ZipString</i> , YouTube video, January 3, 2023 (available at https://www.youtube.com/watch?v=9MtrcXZbHh8))
Exhibit 1020	Print out of ZipString’s FAQ webpage (printed from https://zipstring.com/pages/faqs)
Exhibit 1021	Print out of Google support website (printed from https://support.google.com/youtube/answer/57407?hl=en&ref_topic=9257439&sjid=7169604476855613924-NC)
Exhibit 1022	Print out of ZipString Patents webpage (printed from https://zipstring.com/pages/patents)

I. ARGUMENTS

Patent Owner filed a Reply to Petitioner's Opposition of the contingent Motion to Amend (PO Reply on MTA) that merely reiterates previously presented arguments. *See* Paper No. 20. The Board has previously considered Patent Owner's arguments in the Institution Decision and its Preliminary Guidance on the MTA and has not found them persuasive. *See* Paper Nos. 6 and 16. As there is nothing in Patent Owner's Reply on the MTA that changes the analysis, the Board should maintain its preliminary findings and determine that substitute claims 21-26 and 28 are unpatentable. Paper 16, PTAB Preliminary Guidance at 5 ("Petitioner has shown a reasonable likelihood that proposed substitute claims 21-26 and 28 are unpatentable.").

A. Substitute Claims 21-26 and 28 are rendered Obvious Over Wagner in view of Yeany and Scorch (Grounds 3 and 4 in the Petition)

Patent Owner's Reply on the MTA does not dispute that all the limitations of the substitute claims are taught by the above combination. Instead, Patent Owner only attacks the motivation to combine by repeating an argument that it previously raised in its Reply for the issued claims. In particular, Patent Owner asserts that "Dr. Kudrowitz's modification of Wagner actually results in a worse design than if Wagner was left as-is" while providing a list of features that are allegedly worse in the combination. PO Reply on MTA at 4.

Petitioner fully addressed this argument in its Opposition to the MTA and refers to those arguments rather than repeat them in full herein. Pet. Opposition to MTA at 4-6. In short, the facts do not support Patent Owner's assertions that "Wagner [] left as is" is a superior design over the combination. *Id.* Moreover, as the Board preliminarily agreed, the evidence demonstrates that the benefits of the proposed combination to improve the convenience of replacing a loop of string would motivate a POSITA to make the combination even in the presence of some other drawbacks. *Id.*; Paper 16, PTAB Preliminary Guidance at 9 ("even if there were drawbacks to the modification, Petitioner's rationale recites sufficient benefits to support a motivation to pursue the proposed modification."); *see also* Ex. 1002 at ¶144 (Dr. Kudrowitz on benefits of combination).

Notably, Patent Owner does not even attempt to distinguish the long line of Federal Circuit cases provided in Petitioner's opposition supporting a motivation to combine references to achieve a benefit despite drawbacks. Pet. Opposition to MTA at 4-6 (citing *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1075 (Fed. Cir. 2015) (motivation requires a POSITA to "recognize the potential benefits and pursue the variation."); *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (obviousness does not require that the proposed combination "is the preferred, or most desirable, combination"); *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) ("Likewise, a given course of action often has simultaneous advantages and

disadvantages, and this does not necessarily obviate motivation to combine “)). Patent Owner does not dispute that the proposed combination provides a benefit in loading and unloading string compared to the teachings of Wagner alone.

As such, Patent Owner does not provide any persuasive argument why the Board should change its mind that substitute claims 21-26 and 28 are unpatentable over Wagner in view of Yeany and Scorch. Paper 16, PTAB Preliminary Guidance at 6-9.

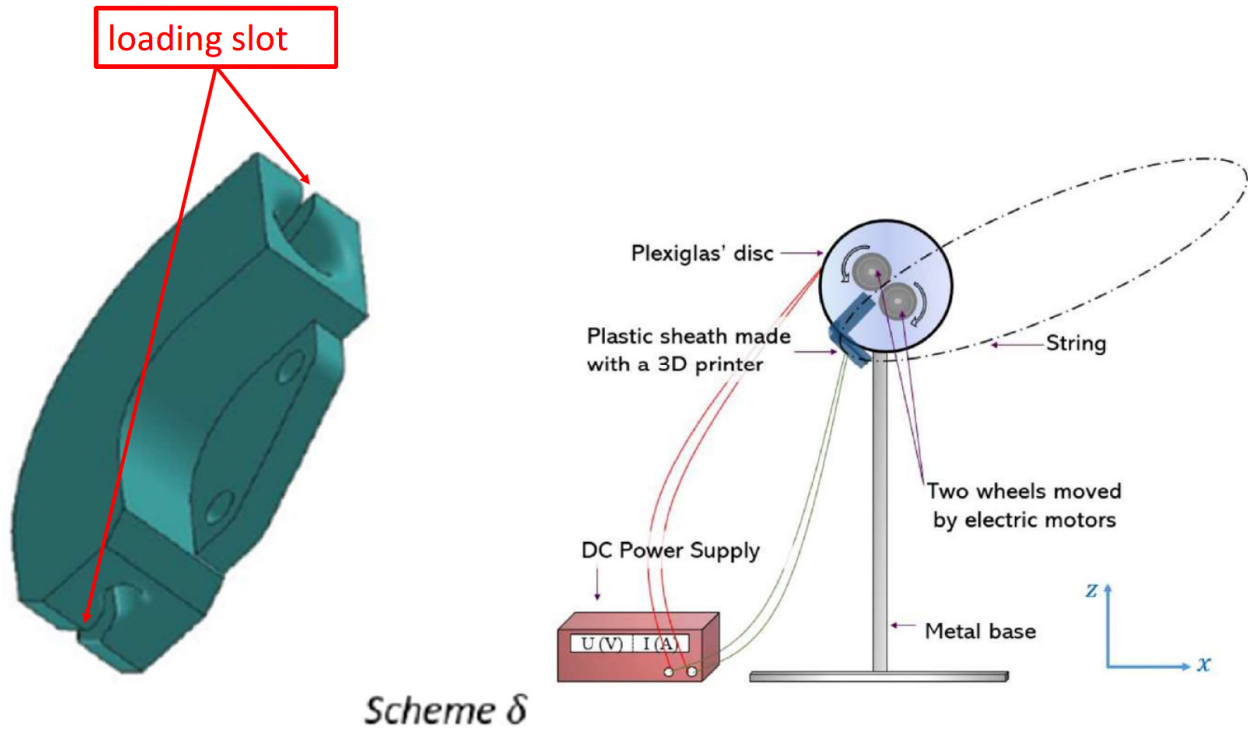
B. Substitute Claims 25, 26 and 28 are rendered Obvious Over Abello in view of Yeany (Ground 2 in the Petition)

Patent Owner’s Reply on the MTA only addresses substitute claim 25 for the above combination of references. For substitute claim 25, Patent Owner makes conclusory arguments that “neither Yeany nor Abello include a housing between a pair of wheels as disclosed in the ‘774 patent.... Accordingly, it would be impossible to include the limitation of loading slot to a housing that neither Yeany nor Abello discloses.” PO Reply on MTA at 5.¹ Patent Owner provides no explanation for how it arrived at this conclusion, which provides no reason for the Board to arrive at a

¹ The requirement for “a housing between a pair of wheels” appears in issued claim 12. Thus, Patent Owner seems to be relying on the recitations in issued claim 12 rather than any new limitation added in substitute claim 25. The subject matter of issued claim 12 is obvious for the reasons provided in the Petition and Petitioner’s Reply under Ground 2 (claim 12 recites overlapping subject matter with claim 1 and thus the Petitioner refers to its analysis of claim 1 when addressing claim 12). Petition at 53-61 and 64-67; Petitioner’s Reply at 12-15.

different conclusion than it reached in its preliminary guidance on this claim. Paper 16, PTAB Preliminary Guidance at 12 (“[Patent Owner’s] argument merely recites the claim language and asserts that Abello and Yeany do not teach or suggest this limitation without meaningfully addressing Petitioner’s position or the alleged housing and loading slot in Abello.”).

Patent Owner’s Reply to the MTA also offers no explanation as to why Petitioner’s mapping of prior art teachings to the claim limitations is faulty. *See* Pet. Opposition to MTA at 11-13. As explained by Dr. Kudrowitz, Abello teaches a looped string would be loaded or unloaded via a loading slot of the sheath (e.g., the housing) into a rounded channel which “guides the returning string back in between the wheels.” Ex. 1002 at ¶¶117-119 (emphasis added). An exemplary loading slot configured to perform these functions is shown below where the sheath (e.g., the housing) is shown “between the pair of wheels” so that the string is guided to the correct location for the wheels to shoot the string:



Patent Owner does not explain why the combination fails to show a housing that includes a loading slot that can be used to load or unload a string between a pair of wheels.

Lastly, Patent Owner asserts without explanation that Dr. Kudrowitz “has provided unsupported conclusory arguments and has failed to articulate why a POSITA would be motivated to combine these references.” PO Reply on MTA at 5. This argument lacks any credibility given the detailed motivation provided in the Petition and Dr. Kudrowitz’s declaration why a POSITA would combine Abello with Yeany. Petition at 53-54; Ex.1002, ¶¶111-114. In sum, Abello teaches that increasing air drag by using a non-smooth string surface reduces take-off speed, thereby provide numerous benefits including reduced power, noise, motor size, and

costs. Petition at 53-54; Ex.1002, ¶111-114. Dr. Kudrowitz then explained that “Yeany’s fuzzy string would have increased the drag on the string and provided the benefits discussed above” thereby motivating a POSITA to combine the teachings of Abello and Yeany. Ex.1002, ¶114. These underlying facts, not to mention that Abello directly references Yeany, undergird Dr. Kudrowitz’s non-conclusory motivation analysis.

C. Indefiniteness of Substitute Claim 25

Substitute claim 25 recites in relevant part, “receiving a looped string into a housing including a loading slot between a pair of wheels, said loading slot provides a mechanism to load and unload said looped string.” Mot. to Amend at Appendix ii. Patent Owner argues that the meaning of substitute claim 25 is clear when reading column 10, lines 42-44 of the ’774 Patent. Yet, this portion of the ’774 Patent merely repeats a portion of the claim language without explaining its meaning. Ex. 1001 at 10:42-10:44 (“The loading slot 101 of example embodiments provided herein provides a mechanism by which a user can load and unload a looped string from the device quickly and easily”).

While this disclosure in the specification might suffice to provide written description support, it is of little relevance to definiteness. In its preliminary guidance the Board indicated that the scope of the claim may have “breadth” but that is not the same as indefiniteness. While the Board is correct that broad claims are

not inherently indefinite, to the extent the breadth of the claim has no objective boundaries then it is indefinite. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (“The claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art.”). Understandable, Patent Owner does not attempt to explain how the loading slot “provides a mechanism” or what the objective boundaries of the claim are.

Here, the very purpose of the loading slot in the ’774 Patent is to define an opening in the housing to load and unload the string. *See e.g.*, Ex. 1001 at 1:64-64 (“the housing define a loading slot through which the string is loaded or removed”). Thus, the loading slot itself is the mechanism to load and unload string disclosed in the ’774 Patent. Even Patent Owner acknowledges this understanding of the ’774 Patent. Mot. to Amend at 6 (“a loading slot *which is the mechanism* by which a user can load and unload the looped string.”) (emphasis added). As such, when substitute claim 25 recites a loading slot “provides” a mechanism to load and unload string it is not clear what that scope entails in the context of the ’774 Patent.

For instance, there is presumed to be a difference in claim scope between recitations of “said loading slot is a mechanism to load an unload said looped string” and “said loading slot provides a mechanism to load and unload said looped string” because “is” and “provides” have different ordinary meanings. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-14 (Fed. Cir. 2005) (en banc) (claims terms given their

ordinary meaning); *Symantec Corp. v. Comput. Assoc. Int'l, Inc.*, 522 F.3d 1279, 1289 (Fed.Cir.2008) (“the general assumption is that different terms have different meanings.”). Thus, providing a mechanism requires something other than being the mechanism, yet in the context of the ’774 Patent it is not clear what that something is.

In more practical terms, the question is what loading slot would read on the limitation of a general “loading slot” but would not read on the claim language of “said loading slot provides a mechanism to load and unload said looped string,” as the general “loading slot” itself is a mechanism to load and unload string. There is no reasonable certain answer to this question in the context of the ’774 Patent since the specification does not provide any guidance on the objective boundaries for how a “loading slot” differs in scope from a “loading slot provides a mechanism to load and unload said looped string.” *Nautilus Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014) (“a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention”).

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Respectfully submitted,
/James P. Murphy/
James P. Murphy
Reg. No. 55,474

Jeffrey Kuo
Reg. No. 73,071

POLSINELLI PC
1000 Louisiana Street
Suite 6400
Houston, Texas 77002
Tel: (713) 374-1600

Attorneys for Petitioner

CERTIFICATION OF COMPLIANCE

Petitioner certifies this Sur-Reply to Patent Owner's Reply to Petitioner's Opposition to Patent Owner Motion to Amend complies with the 12-page limit set forth in 37 C.F.R. § 42.24(c)(3).

CERTIFICATE OF SERVICE UNDER 37 CFR § 42.6(e)(4)

The undersigned hereby certifies that a copy of the foregoing document is being served via electronic mail on October 31, 2025 upon the following:

Kenneth W. Cohen
kcohen@ipcounselors.com

Jodi-Ann McLane
jmclane@ipcounselors.com

mail@ipcounselors.com

/Ericka McNeil/
Ericka McNeil
Polsinelli, PC
1000 Louisiana Street, Suite
6400
Houston, Texas 77002
Tele: (713) 374-1600