

UNITED STATES PATENT & TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CircusTrix Holdings, LLC, et al.
Petitioners,

v.

Cherokee Gray Eagle IP, LLC
Patent Owner

Case IPR2019-00263
U.S. Patent 8,764,575

DECLARATION OF KIMBERLY CAMERON

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EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent No. 8,764,575 (“the ’575 patent”)
1002	File History of U.S. Application No. 14/827,775 (issued as the ’575 patent) (“File History”)
1003	U.S. Provisional Patent Application No. 61/356,108
1004	Certified translation of CN 101259316A (“Guo”)
1005	U.S. Patent Application Pub. No. 2007/0010374 A1 (“Widich”)
1006	U.S. Patent No. 6,053,845 (“Publicover”)
1007	U.S. Patent Application Pub. No. 2005/0032609 A1 (“Nissen”)
1008	U.S. Patent No. 3,233,895 (“Grelle”)
1009	U.S. Patent No. 5,624,122 (“Winkelhorn”)
1010	CN 101259316A (original in Chinese)
1011	File History of U.S. Application No. 14/151,975
1012	File History of U.S. Application No. 13/164,356

I, Kimberly Cameron, hereby declare as follows:

I. Overview

1. I am over the age of eighteen and otherwise competent to make this declaration.

2. I have been retained as an expert witness on behalf of CircusTrix Holdings, LLC (“CircusTrix”) for the above-captioned *inter partes* review (“IPR”). I am being compensated for my time in connection with this IPR at my standard legal consulting rate, which is \$370 per hour. I have no personal or financial interest in the outcome of this proceeding.

3. I understand that the petition for *inter partes* review involves U.S. Patent No. 8,764,575 (“the ’575 Patent,” Ex. 1001), which claims a priority date based on U.S. Provisional Patent Application No. 61/356,108, filed on June 18, 2010. I have been informed that Cherokee Gray Eagle IP, LLC (“Patent Owner”) is the owner of the ’575 Patent.

4. Using June 18, 2010 as the priority date, it is my opinion that Claims 1-19 of the ’575 Patent are invalid in view of the prior art, as described throughout this Declaration.

5. In preparing this Declaration, I have reviewed the ’575 Patent and considered each of the documents cited herein, in light of general knowledge in the art at the time. In formulating my opinions, I have relied upon my experience and

expertise in the relevant art. In formulating my opinions, I have also considered the viewpoint of a person of ordinary skill in the art (“POSITA”) as of the priority date of the ’575 Patent. Thus, I have considered the viewpoint of a POSITA as of the date of June 18, 2010.

6. Broadly, this declaration sets forth my opinion that Claims 1-19 of the ’575 Patent are invalid in view of the prior art. First, this declaration sets forth my opinion that a POSITA would have found Claims 1-7, 9, and 18 of the ’575 Patent anticipated or obvious in view of Chinese Patent Publication No. CN 101259316A to Guo (“Guo,” Ex. 1002), published September 20, 2008.

7. Second, this declaration sets forth my opinion that a POSITA would have been motivated to arrive at an embodiment within the scope of Claims 8, 10, 19 with a reasonable expectation of success, by combining the disclosures of Guo and U.S. Patent No. 6,053,845 to Publicover (“Publicover,” Ex. 1006), filed June 19, 1998, and therefore these claims are invalid as obvious.

8. Third, this declaration sets forth my opinion that a POSITA would have been motivated to arrive at an embodiment within the scope of Claims 11-15, with a reasonable expectation of success, by combining the disclosures of Guo, Publicover, and U.S. Patent No. 3,233,895 to Grelle (“Grelle,” Ex. 1008), filed October 16, 1961, thus rendering them invalid as obvious.

9. Fourth, this declaration sets forth my opinion that a POSITA would have been motivated to arrive at an embodiment within the scope of Claims 16-17, with a reasonable expectation of success, by combining the disclosures of Guo and U.S. Publication No. 2005/0032609A1 to Nissen (“Nissen,” 1007), thus rendering them invalid as obvious.

10. Fifth, this declaration sets forth my opinion that a POSITA would have found Claims 1-10 and 19 of the ’575 Patent anticipated or obvious in view of U.S. Publication No. 2007/0010374A1 to Widich (“Widich,” Ex. 1005), published January 11, 2007.

11. Sixth, this declaration sets forth my opinion that a POSITA would have been motivated to arrive at an embodiment within the scope of Claims 11-15 with a reasonable expectation of success, by combining the disclosures of Widich and Grelle, and therefore these claims are invalid as obvious.

12. Finally, this declaration sets forth my opinion that a POSITA would have been motivated to arrive at an embodiment within the scope of Claims 16-17, with a reasonable expectation of success, by combining the disclosures of Widich and Nissen, thus rendering them invalid as obvious.

13. Finally, I explain in this declaration how, in reaching my conclusions regarding obviousness, I have considered potential objective indicia of

nonobviousness and have concluded that there are none I am aware of that would support a claim of nonobviousness

14. The chart below summarizes the grounds of unpatentability I present in this declaration:

Ground		Claims	Basis	Reference(s)
1	a	1-7, 9, and 18	§ 102	Guo (Ex. 1004)
	b	1-7, 9, and 18	§ 103	Guo
2		8, 10, 19	§ 103	Guo and Publicover (Ex. 1006)
3		11-15	§ 103	Guo, Publicover, and Grelle (Ex. 1008)
4		16-17	§ 103	Guo and Nissen (Ex. 1007)
5	a	1-10, 19	§ 102	Widich (Ex. 1005)
	b	1-10, 19	§ 103	Widich
6		11-15	§ 103	Widich and Grelle
7		16-17	§ 103	Widich and Nissen

II. Background and Qualifications

15. I am a Senior Managing Consultant at Engineering Systems Incorporated (ESi), a leading scientific and engineering firm. I specialize in mechanical engineering and materials science and have extensive experience with the design of mechanical systems as well as with materials selection and analysis. Relevant to my Declaration here, I have worked on numerous projects involving structural supports and consumer products such as trampolines. These projects include, but are not limited to, design evaluation, materials selection, stress analysis, failure analysis, as well as patent validity and infringement analyses. A copy of my curriculum vitae is attached as Appendix A to this Declaration. The

curriculum vitae includes a current list of publications authored in the previous ten (10) years. A list of all other cases in which, during the last 4 years, I testified as an expert at trial or by deposition is attached as Appendix B.

16. I graduated with high honors from Princeton University with a bachelor's degree in Mechanical Engineering and minors in Materials Science, Applied Mathematics and Engineering Physics. I also received a master's degree and doctorate in Mechanical Engineering with a minor in Materials Science and Engineering from Stanford University.

17. I have received numerous awards including fellowships from the Department of Defense, the National Science Foundation, and Lucent Technologies. I am a Registered Professional Engineer in both Mechanical Engineering and Materials Science and Metallurgy and am a registered patent agent. Given the foregoing, I am qualified to provide an opinion as to what a POSITA in the field of trampolines would have understood, known or concluded as of the priority date of the '575 Patent.

III. List of Documents Considered in Formulating My Opinions

18. In formulating my opinions, I have considered the '575 Patent, as well as the file history for the '575 Patent. I have also considered all of the documents identified in the exhibit list above.

IV. Person of Ordinary Skill in the Art (“POSITA”)

19. I understand that a POSITA is a hypothetical person who is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity.

20. A POSITA in the field of trampolines would have had knowledge of the technical literature concerning trampolines before June 18, 2010.

21. Typically, a POSITA would have had a four-year technical degree (*e.g.*, B.S. in Engineering) with several years of experience in using, provisioning, designing or creating, or supervising the design or creation, of mechanical support systems, such as those used for trampolines. Additional educational experience could substitute for the experience, and extended experience in the industry could substitute for a technical degree.

22. Based on my experience and qualifications discussed in Section II above, I have an understanding of the capabilities of a POSITA in the relevant field.

V. Overview of the ’575 Patent

23. I understand that this declaration is being submitted together with a petition for *inter partes* review of Claims 1-19 of the ’575 Patent.

24. I have reviewed the '575 Patent, which issued on July 1, 2014, and its file history. The '575 patent claims earliest priority to U.S. Provisional Patent Application No. 61/356,108, filed on June 8, 2010.¹

25. The '575 patent issued from U.S. Patent Application No. 14/182,775, which was filed on February 18, 2014.² That application was a continuation of application No. 14/151,975, filed on Jan. 10, 2014,³ which is a continuation of application No. 13/164,356 filed on Jun. 20, 2011,⁴ now U.S. Patent No. 8,657,696.⁵

26. The application for the '575 patent contained 20 claims. In a first office action on April 10, 2014, the Examiner allowed claims 1-18, rejected claim 19, and objected to claim 20 as dependent on rejected based claim 19, but stated claim 20 would be allowable if rewritten in independent form.⁶ In rejecting claim

¹ Ex. 1003 (61/356,108 provisional).

² Ex. 1002 (File History), pp. 0070, 0105-0107.

³ Ex. 1011 (Parent File History).

⁴ Ex. 1012 (Grandparent File History).

⁵ Ex. 1001 ('575 Patent).

⁶ Ex. 1002 (File History), pp. 0051-0056.

19, the Examiner relied upon U.S. Patent No. 5,624,122 (Winkelhorn).⁷ The Examiner stated that Winkelhorn discloses “a trampoline system comprising a plurality of rigid side frames (18) defining a wall, a plurality of voids (space between the frames) being defined between the side frames, the side frames interconnected at their upper ends by a plurality of upper frame members (12a, 12b, 14a, 14b); a plurality of trampolines (24) connected to the side frames along periphery thereof and extending across the voids; a padding assembly (29) including a plurality of pads at least partially overlying the side frames and the peripheries of the trampolines.”⁸ The Examiner also relied upon U.S. Patent No. 6,607,468 (Nichols), which is directed to a trampoline enclosure but which does not disclose trampoline sidewalls and is not a trampoline arena.⁹ Without any explanation, the Examiner found that original claims 1-18 of the application for the ’575 patent were patentable over the prior art, including Winkelhorn.¹⁰

⁷ Ex. 1002 (File History), pp. 0053, 0054; Ex. 1009 (Winkelhorn).

⁸ Ex. 1002 (File History), pp. 0053.

⁹ Ex. 1002 (File History), pp. 0053, 0054.

¹⁰ Ex. 1002 (File History), pp. 0052, 0054.

27. In an amendment dated April 24, 2014, the applicant canceled claim 20 and re-wrote claim 19 to include the limitation of claim 20.¹¹ In response to the applicant's amendment, the Examiner allowed the claims.¹²

28. In assessing the '575 Patent, I have considered the teachings of the technical literature before June 18, 2010 in light of the specific references cited herein, what the references would have conveyed to a POSITA, and in view of the general knowledge of a POSITA as of that date.

29. The '575 patent purports to provide "an improved trampoline arena."¹³ The purported improvement refers to the frame structure for the trampoline arena. As the "Summary of the Invention" in the '575 patent describes: "According to an embodiment of the present invention, a trampoline arena includes a framework assembly having a ***plurality of frame elements defining an outwardly sloping outer wall, and a deck, a plurality of voids being defined between the frame work elements.*** The arena also includes a plurality of trampolines connected to the frame elements along peripheries thereof and

¹¹ Ex. 1002 (File History), pp. 0035-0049.

¹² Ex. 1002 (File History), pp. 0028-0034.

¹³ Ex. 1001 ('575 Patent), 1:31-32.

extending across the plurality of voids to further define the outwardly sloping outer wall and deck, and a padding assembly including a plurality of pads overlying the frame elements and the peripheries of the trampolines.”¹⁴ As further described in this Declaration, the frame structures were well-known in the prior art for providing support, and it would have been a predictable use of such frame structures to provide support for the trampoline arena disclosed in the prior art presented in this petition.

VI. Claim Construction

30. I have been informed that terms of the claims are to be given their ordinary and customary meaning as understood by a POSITA as of the priority date of the '575 Patent in view of the patent and its prosecution history. I do not believe that any of the terms need specific construction and are all used consistent with their plain and ordinary meaning. My analyses below are presented from such a viewpoint.

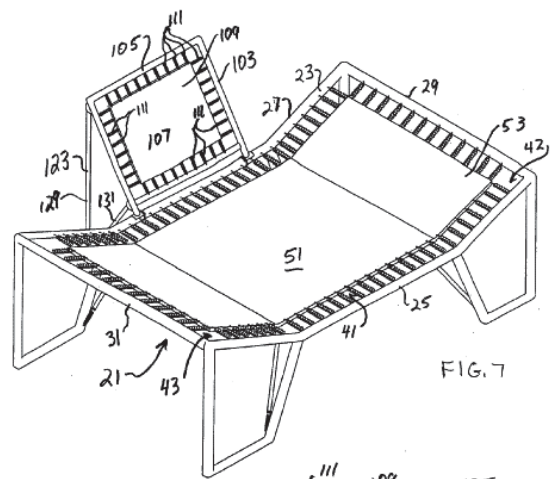
VII. State of the Art

31. By June 18, 2010, the state of the art included the teachings related to trampolines provided by the references discussed in this declaration, including Guo, Publicover, Grelle, Nissen, Winkelhorn, and Widich. These references

¹⁴ Ex. 1001 ('575 Patent), 1:32-42 (emphasis added).

A. Sloped Trampoline Walls and Horizontal Decks

A perspective view of a mobile stage. The stage has a flat roof (2) supported by a frame (1). The stage floor is labeled 3. A set of stairs (4) leads up to the stage. The side walls are labeled 5, and the base of the stage is labeled 6.



33. Horizontal decks, including those with multiple trampolines were also well known in the art. For example, both of the above references have a plurality

of trampolines and a horizontal deck. In addition, Grelle discloses a horizontally-extending deck formed from multiple trampolines, as can be seen from Figure 1 of Grelle, reproduced below as my Figure 2. As explained by Grelle, “a typical above ground trampoline center may consist of a number of trampolines indicated generally by the numeral 26 set into a platform or deck 27.”¹⁵ It was also well known how to support a horizontal deck of trampolines. For example, Grelle also details how to support the horizontal deck with frame members connected by brackets. Figures 6-9, reproduced below as my Figure 3, detail some of the support structures used under the horizontal decking:

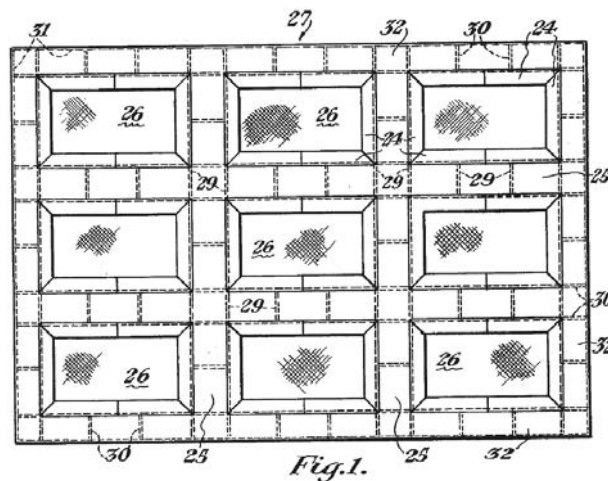


Figure 2. Figure 1 of Grelle showing multiple trampolines on a horizontal deck.

¹⁵ Ex. 1008 (Grelle), Figure 1.

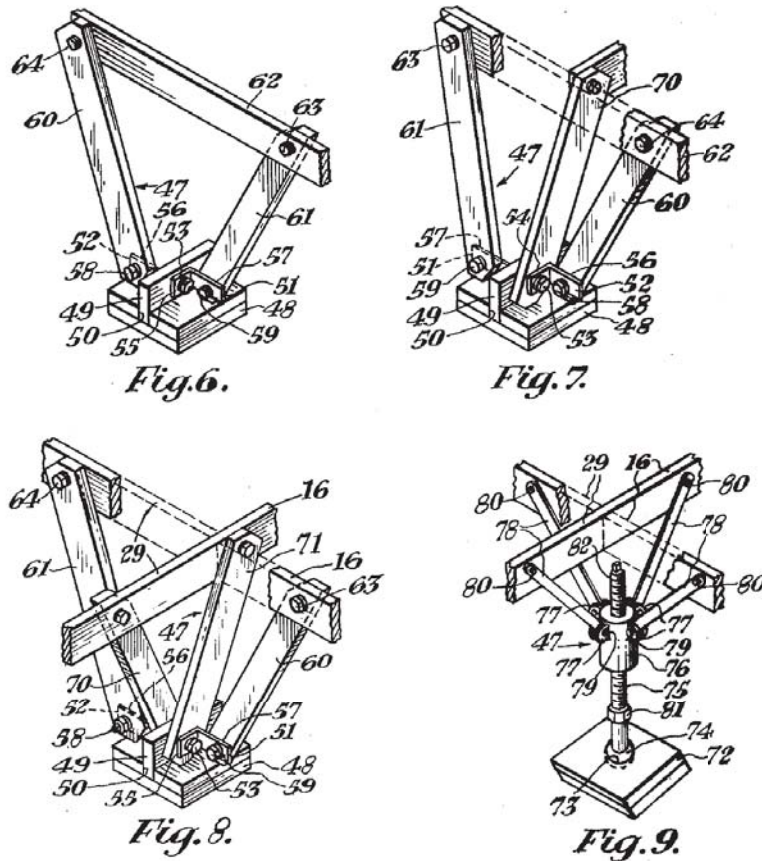


Figure 3. Figures 6-9 of Grelle showing braces that are assembled with brackets to support the horizontal deck.

B. Frame Elements

34. The use of truss members as a supporting structure is routine and well understood by an entry level engineer. A truss typically consists of straight members connected at joints, just like the framework described in the '575 Patent. Trusses are typically composed of triangles because this leads to the most stable design. Triangles are stable because once the length of the three legs are set, the triangle will not change shape. This is in contrast to a shape with more than three

legs whose shape cannot be determined simply by fixing the length of the legs.

Figure 4 shows a generic example of a common and mono truss structure.



Figure 4. Common and mono truss structures showing support members with brackets connecting the support members.

35. The design of trusses is so well understood that scores of commercial programs exist to design and calculate the stresses in trusses. A POSITA would easily understand how to design a truss for a particular application. Upright and angled supports are employed routinely for structures such as a trampoline arena deck. This type of design is routine in the field of engineering and does not require any ingenuity.

36. Mechanical engineers are also taught that for structural members that will only be loaded in tension and not in compression, more options exist for the structural elements. In fact, in many applications, the structure is designed to minimize the number of compressive elements to minimize the overall structural profile. Figure 5 shows a simple schematic of tensile versus compressive loading.

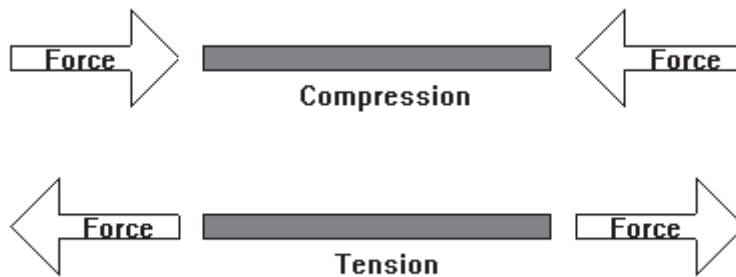


Figure 5. For structural members that are under tension only, cables or tie rods can be used.

37. Most commonly, for tensile only elements, steel cables and rods are used in place of typical structural beams. Cables, when under tension, are rigid. Rods, although they cannot withstand large compressive loads, are rigid elements. While ropes or cables are typically the less expensive option, steel rods are used as a substitute for cables due to the more refined appearance of a rod system. Rods are also commonly used over a shorter span than cables or ropes. Cables tend to be used instead of rods when the member passes through several struts or clamps (joints) or needs to turn through a sharp angle. Figure 6 shows one example of a tension rod that can be used in place of a cable. These rods are often adjustable in length so that minor adjustments can be made.



Figure 6. A rigid tension rod that can replace a flexible cable when the loads are only tensile.

C. Brackets

38. Another structural element that is well known is a bracket. In mechanical engineering a bracket is any intermediate component for fixing one component to another (*i.e.*, mechanical fasteners), and they can take any number of forms. Brackets are routinely used in trampoline frame construction as well as in scores of other framing applications. Unsurprisingly, prior art publications of trampoline arenas show brackets connecting the support members as well. Figure 7, Figure 8, and Figure 9 show some generic examples of truss members and brackets.

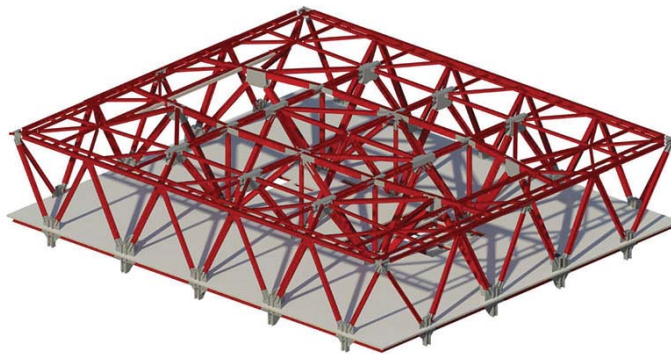


Figure 7. Support members shown in red, connected by grey brackets.

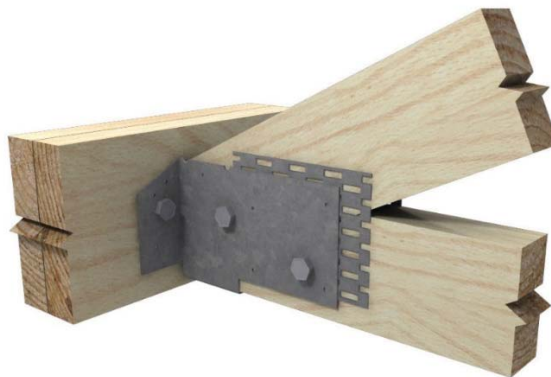


Figure 8. Close up of a bracket connecting three beams.

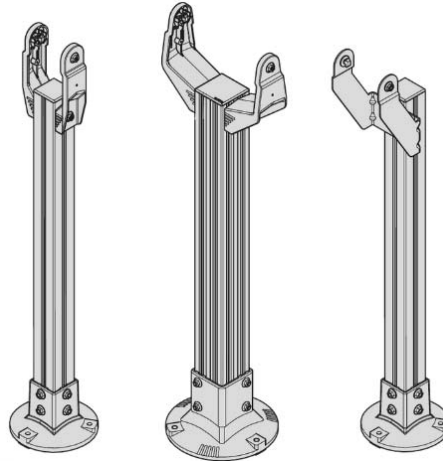


Figure 9. Support members with a flange that could be secured to a floor at the bottom and a bracket for connecting to additional support members at the top.

39. Numerous patent literature published before June 18, 2010 in the field of trampolines also shows members connected by brackets. For example, Grelle discloses numerous brackets to attach numerous upright, horizontal, and other trampoline frame members.¹⁶ Publicover discloses an upper bracket connecting an upright member to a horizontal deck, as seen in Figures 3 and 10 of Publicover, reproduced below as my Figure 10. As explained by Publicover, “Each post is connected to a leg by two leg fasteners **58, 60**. As best seen in [Publicover] FIG. **3**, the upper fastener **58** is an assembly having two U-bolts **64**. The U-bolts have threaded ends **65**. In use, the U-bolts are positioned to encompass the frame **34** on opposite sides of the vertically extending portion **37** of a leg **36**.”¹⁷ In addition,

¹⁶ Ex. 1008 (Grelle), 4:24-64.

¹⁷ Ex. 1006 (Publicover), 3:62-68 (emphases in original).

Publicover discloses that “[t]he bracket can be designed to receive free ends of four separate tubing members as illustrated. Or, a passage way can be provided through the bracket, horizontally and/or vertically, so that the bracket can be secured at a location between the free ends of a tube.”¹⁸

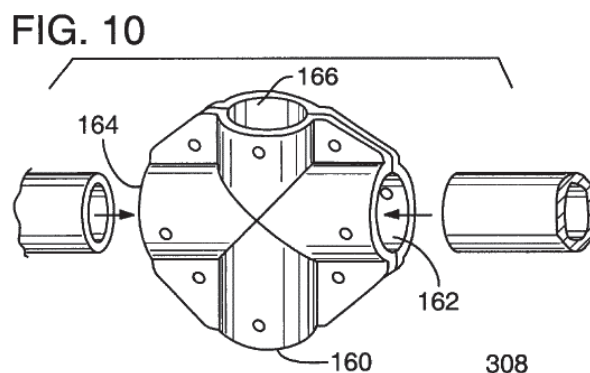
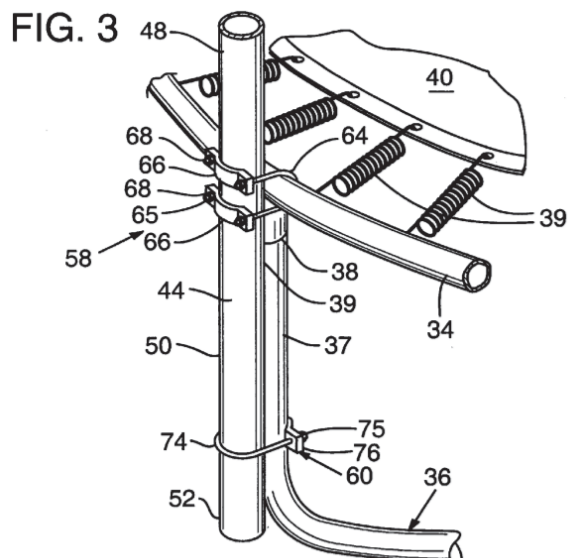


Figure 10. Brackets connecting an upright member to the horizontal trampoline deck are shown in Figure 3 of Publicover; Figure 10 of Publicover shows one form of bracket for securely connecting frame members together.

40. A POSITA would have been very familiar with connecting the various frame members and deck with brackets and would have understood that this was the default way to connect elements of such a frame. Frames and brackets are chosen to be lightweight, easy to process, easy to assemble and cost effective. A POSITA would have understood that using a single, pre-formed frame structure

¹⁸ Ex. 1006 (Publicover), 12:5-9.

would be more complex and expensive to produce than bracketed systems. This is because it is easier to divide long, linear beams into separate frame members that are bracketed together, resulting in lower finishing and moving costs associated with the frame.

D. Frames Mounted to the Ground

41. For structural frames, the bottoms of members (*e.g.*, the vertical posts) are typically designed to interface with the ground/floor and are therefore mountable to the ground/floor. In order to provide additional stability, a POSITA would have understood any number of ways that the frame members would have been mounted to the ground/floor, including, for example, using ropes, rivets, brackets, bolts, welds, or stakes. Frame members may have additional structure for facilitating easier mounting, such as a wider base, flanges, or additional features that make it easier to temporarily or permanently attach the frame to the floor. For a permanent installation, for example, the floor itself may include permanent hardware that the frame member slides into. My Figure 11 shows two common examples of how to use hardware to mount the members of a frame to the ground or floor.



Figure 11. Examples of sleeves that are fixed to the ground or floor for mounting bottom members of a frame.

42. This is also common for trampoline frames. My Figure 12 below shows Figure 8 of Widich that shows a trampoline frame with a bottom portion of the upright members of the frame having stabilizing feet (129) that engage the floor:

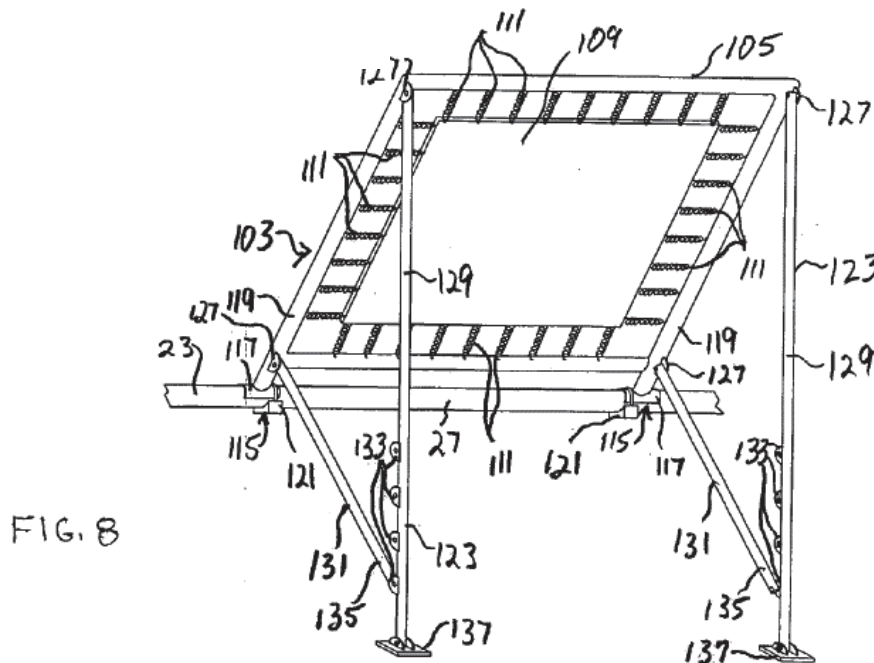


Figure 12. Figure 8 of Widich shows stabilizing feet 137 that assist in stabilizing the upright members 129 when mounting them to the floor.

43. As another example from the prior art, Grelle also discloses ground-engagement methods using braces.¹⁹ These braces secure both the periphery and inner portions of the deck to the ground, and in some instances, provide structure for leveling the trampoline with respect to uneven surfaces with which the legs engage.

E. Padding

44. It was also well-known to a POSITA to use a “padding assembly” to enhance the safety of prior art trampoline arenas by covering the joints between individual trampolines of the trampoline arenas. Where the individual trampolines connect to the frame (*i.e.*, at the joints between the individual trampolines), the frame members (and the potential springs and gaps that may exist where the trampoline material is connected inside the frame) can present hazards for users of the trampolines. The frame members are a safety concern because a person jumping from a location on the trampoline could accidentally impact the less-resilient frame members or get a portion of their body (*i.e.*, a foot) caught in the gap at the trampoline frame. If these areas are unprotected, the user is likely to sustain injury. Covering these locations with padding improves the safety of the trampoline arena and minimizes the risk of injury to the user of the trampoline.

¹⁹ Ex. 1008 (Grelle), 4:11-5:22, Figs. 6-9.

For example, Guo discloses the use of such padding at the joints trampolines.²⁰

Indeed, numerous prior art references teach the benefits of using padding to cover hazardous trampoline elements. *See, e.g.*, Ex. 1008 (Grelle), Figs. 1-4, 10 and 1:20-36, 3:1-41, 3:74-4:10, 5:23-32; Ex. 1004 (Guo), ¶ [0025]; Ex. 1006 (Publicover), Figs. 1, 4, 5 and 4:52-65; Ex. 1005 (Widich) ¶ [0037].

F. Basis of My Analysis with Respect to Anticipation

45. I understand and have been informed that 35 U.S.C. § 102 (“§ 102”) provides the standards for determining whether a claim in a patent is invalid as anticipated by prior art. I also understand and have been informed that, for purposes of my declaration here, “prior art” consists of patents or other types of printed publications that were publicly available before the earliest priority date for each of the claims. I understand and have been informed that a claim in a patent is invalid as anticipated under § 102 if each and every element or feature of the claim is found expressly or inherently in a single prior art reference.

46. I understand and have been informed that § 102 includes different subsections that dictate which types of information are considered prior art before the '575 Patent's (1) invention date or (2) earliest effective U.S. filing date. In particular, I understand and have been informed that prior art under § 102(b)

²⁰ Ex. 1004 (Guo), 7:[0025].

consists of (1) printed publications, including patents—whether published in the United States or elsewhere in the world—that describe an invention more than a year prior to the earliest effective U.S. filing date of the invention, and (2) public use or sale of an invention in the United States more than a year prior to the earliest effective U.S. filing date of the invention. Additionally, I understand and have been informed that prior art under § 102(e) consists of (1) patent applications by another, published under section 35 U.S.C. § 122(b) that were filed in the United States before the invention date of a patent or (2) patents, by another, granted on applications for patents filed in the United States before the invention date of a patent.

47. I understand and have been informed that a prior art reference is prior art for all that it teaches to a POSITA. I further understand and have been informed that, when determining whether a single item of prior art anticipates the claims, one may consider not only what is expressly disclosed in that prior art, but also what is inherently present in that prior art. I understand have been informed that that claim limitations that are not expressly found in a prior art reference are inherent if the prior art necessarily functions in accordance with, or includes, the claim limitations, or if the missing element or feature would be the natural result of following what the prior art teaches to persons of ordinary skill in the art. I also understand and have been informed that it is acceptable to examine evidence

outside the prior art reference, in determining whether a feature, while not expressly discussed in the reference, is necessarily present in the reference. I understand and have been informed that that mere probabilities that an element is present are not enough, but it is not required that persons of ordinary skill actually recognized the inherent disclosure at the time the prior art was first known or used.

G. Basis of My Analysis with Respect to Obviousness

48. I understand and have been informed that a patent claim is invalid if the differences between the patented subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art. 35 U.S.C. § 103.

49. I also understand and have been informed that an obviousness analysis involves properly construing a claim and then comparing that claim to the prior art to determine whether the claimed invention would have been obvious to a POSITA in view of the prior art, and in light of the general knowledge in the art.

50. I understand and have further been informed that obviousness can be established by combining or modifying the teachings of the prior art to achieve the claimed invention. I also understand and have been informed that where there is a reason to modify or combine the prior art to achieve the claimed invention, there must also be a reasonable expectation of success in so doing. I understand and have been informed that the reason to combine prior art references can come from a

variety of sources, not just the prior art itself or the specific problem the patentee was trying to solve. I also understand and have been informed that the references themselves need not provide a specific hint or suggestion of the alteration needed to arrive at the claimed invention; the analysis may include recourse to logic, judgment, and common sense available to a person of ordinary skill that does not necessarily require explication in any reference.

51. I also understand and have been informed that when a POSITA would have reached the claimed invention through routine experimentation, the invention may be deemed obvious. I further understand and have been informed that a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I also understand and have been informed that when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a POSITA has good reason to pursue the known options within his or her technical grasp, and if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense and therefore is obvious according to patent laws.

52. Moreover, I understand and have been informed that when considering the obviousness of an invention, one should also consider whether there are any objective indicia that support the nonobviousness of the invention. I

have been informed that objective indicia of nonobviousness include commercial success, long-felt but unmet need, failure of others, industry praise, and unexpected superior results.

H. Background of Guo

53. Guo teaches a stereoscopic-dimensional safe trampoline, a large-scale sports and fitness amusement facility comprising a stereoscopic trampoline frame with stereoscopic trampoline net(s) affixed thereupon, increasing the surface area, efficacy, fun, and safety of the trampoline. Guo Figure 1 (isometric view) shows a stereoscopic safe trampoline with “a stereoscopic trampoline frame 1 and a stereoscopic trampoline net 2 installed inside the stereoscopic trampoline frame.” The bottom of the stereoscopic trampoline depicted in Figures 1-3 of Guo is rectangular, but as explained by Guo “[t]he bottom of the stereoscopic trampoline net may also be one of an equilateral polygon, a triangle or a circle, depending on the different environments and the requirements of different people.” The stereoscopic trampoline frame 1 is formed such that the angle between the side wall of the stereoscopic trampoline frame 1 and the bottom of the stereoscopic trampoline net 2 is greater than or equal to 90° and smaller than 180° .

54. Indeed, Guo Figure 1 shows the angle between the sidewall and the bottom of the trampoline is greater than 90° and smaller than 180° . “The stereoscopic trampoline net 2 is connected and fixed to the stereoscopic trampoline

frame 1 by means of net fixation ropes 5 disposed at the various corners therebeneath. The length of the net fixation ropes 5 can be adjusted to tighten the connection between the stereoscopic trampoline net and the stereoscopic trampoline frame. The angle included between the side wall of the stereoscopic trampoline net and the bottom of the stereoscopic trampoline net can also be adjusted. The net fixation ropes 5 may connect using hasps, hooks, belts, nooses or springs.” Thereby, multiple trampoline surfaces are created by the stretching over and fixation of stereoscopic trampoline net 2 to stereoscopic trampoline frame 1, such that “the angle included between the side wall of the stereoscopic trampoline net 2 and the bottom of the stereoscopic trampoline net 2 is greater than or equal to 90° and smaller than 180°.”

55. I understand that Guo is considered prior art because it published on September 10, 2008, more than one year before the June 18, 2010 priority date of the '575 Patent.

56. As illustrated in the discussion below, Guo discloses, teaches, suggests and/or renders obvious the challenged claims. A POSITA would have been able to make and use the claimed systems without undue experimentation. The following demonstrates on a limitation-by-limitation basis that Guo discloses or renders obvious the features of Claim 1. To facilitate the discussion, both

Figure 1 of Guo and Figure 1 of the '575 Patent have been highlighted with consistent colors for the various elements of the claims:

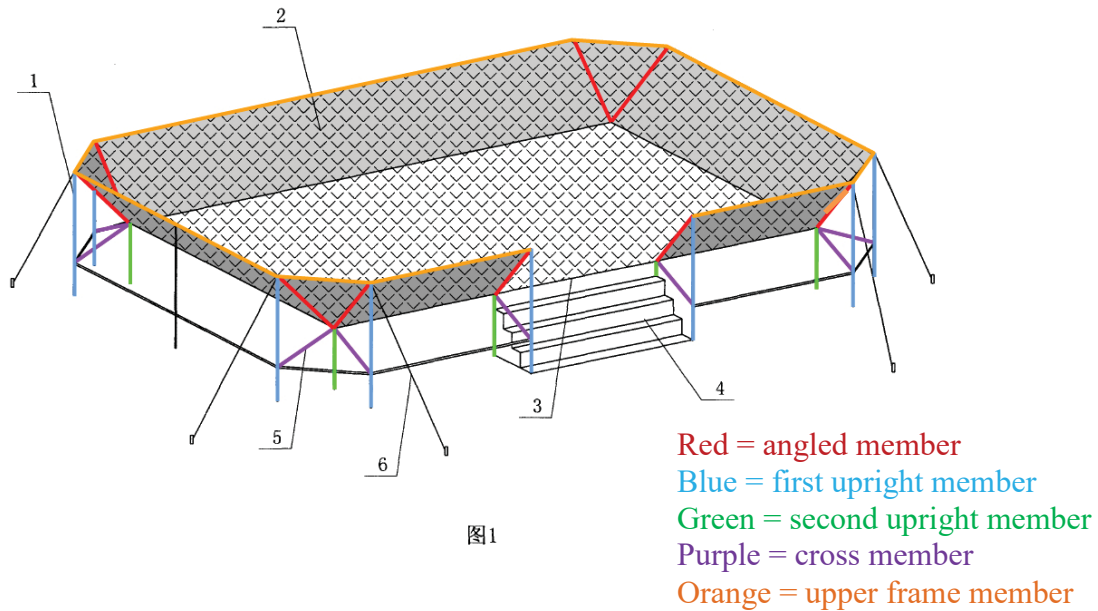


Figure 13. Figure 1 of Guo, highlighting added. Blue = first upright member, red = angled member, green = second upright member, purple = cross member, and orange = upper frame member.

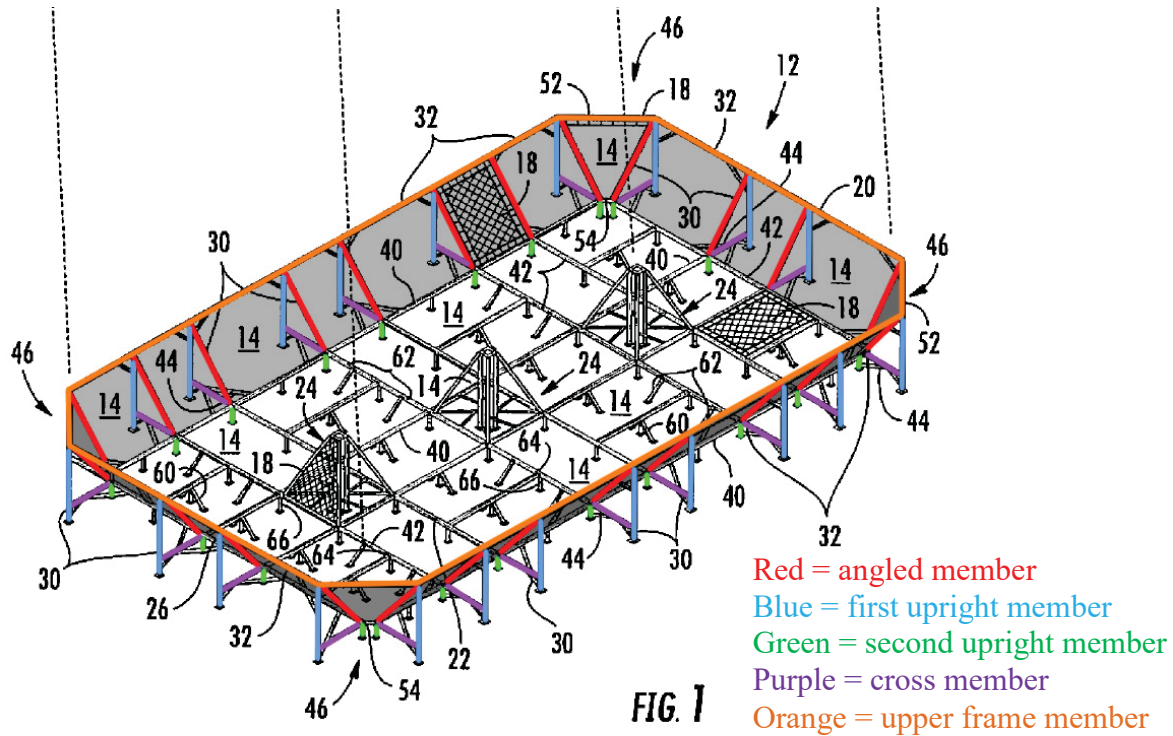


Figure 14: A portion of Figure 1 of the '575 Patent with highlighting added.

I. Background of Widich

57. Widich teaches a “trampboarding” trampoline arena with a “frame adapted to define plural planar fields intersecting at obtuse angles, a flexible material mounted therein and supported and located thereat to retain definition of the obtuse angles as defined by the frame at the flexible material when mounted at the frame and during use of the apparatus.”²¹

²¹ Ex. 1005 (Widich), Abstract; *see also id.* Figs. 1 and 7-8, ¶¶ [0004]-[0005], [0016]-[0018].

58. Widich's arena "is constructed so that the resilient surface provides plural surface engagement angles across the surface."²² Widich teaches a plurality of rigid side frame frames that define and stably maintain the shape of the trampoline's horizontal frame and angled side walls.²³

59. I understand that Widich is considered prior art because it published on January 11, 2007, more than one year before the June 18, 2010 priority date of the '575 Patent.

60. As discussed in more detail below, Widich alone or in combination with POSITA knowledge and other prior art references discloses and/or renders obvious all of the challenged claims of the '575 Patent.

61. To facilitate a reference point, I have highlighted various aspects of Figure 1 of Widich, with similar colors that I added above to Guo and the '575 Patent to highlight the various elements of the claims, including side frames (one example circled in green), a "rigid first upright member" (highlighted in blue), a "rigid angled member" (highlighted in red), a "horizontally-extending deck" (horizontal orange arrow) framed by deck framing (highlighted in yellow), a "rigid

²² Ex. 1005 (Widich), ¶ [0005]

²³ Ex. 1005 (Widich), ¶¶ [0006], [0008], [0034].

apart to form voids (*i.e.*, areas where there are no frame members, shown by yellow arrows above) in which trampoline material is installed using springs.²⁵

64. Widich Figure 7 discloses additional structures that can be added to the arena. As shown below, multiple voids formed between side frames are covered by multiple trampolines (highlighted by orange arrows) extending across the voids, along the peripheries of the angled members, and surrounding the deck:

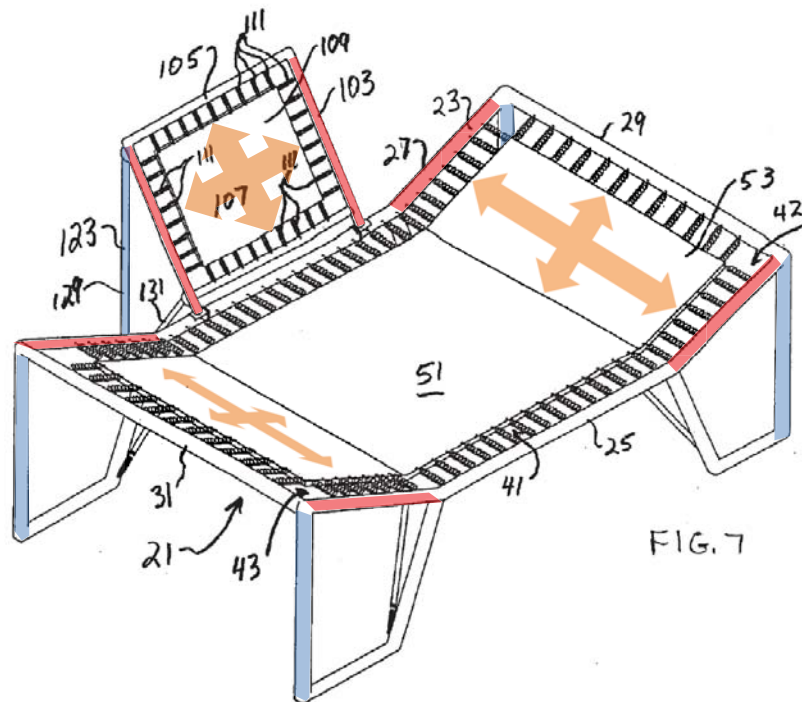


Figure 16: Figure 7 of Widich, highlighting added. Blue = first upright member, red = angled member; see also *id.*, Fig. 8, ¶¶ [0038], [0043], [0047].

65. Widich also teaches that an adjustable configuration can be used to connect the side frames, including by using an adjustable rigid cross member

²⁵ Ex. 1005 (Widich), ¶ [0038].

trampoline.”²⁶ Therefore, Guo meets the preamble of Claim 1, “a trampoline arena.”

a plurality of side frames defining an outwardly sloping outer wall

67. In Guo, the side frame has two upright members, an angled member and a cross member, as can be seen above in my Figure 13. The first upright member is highlighted blue, the second upright member is highlighted green, the angled member is highlighted red and the cross member is highlighted purple. For clarity, the side frame is shown head-on in my Figure 18.

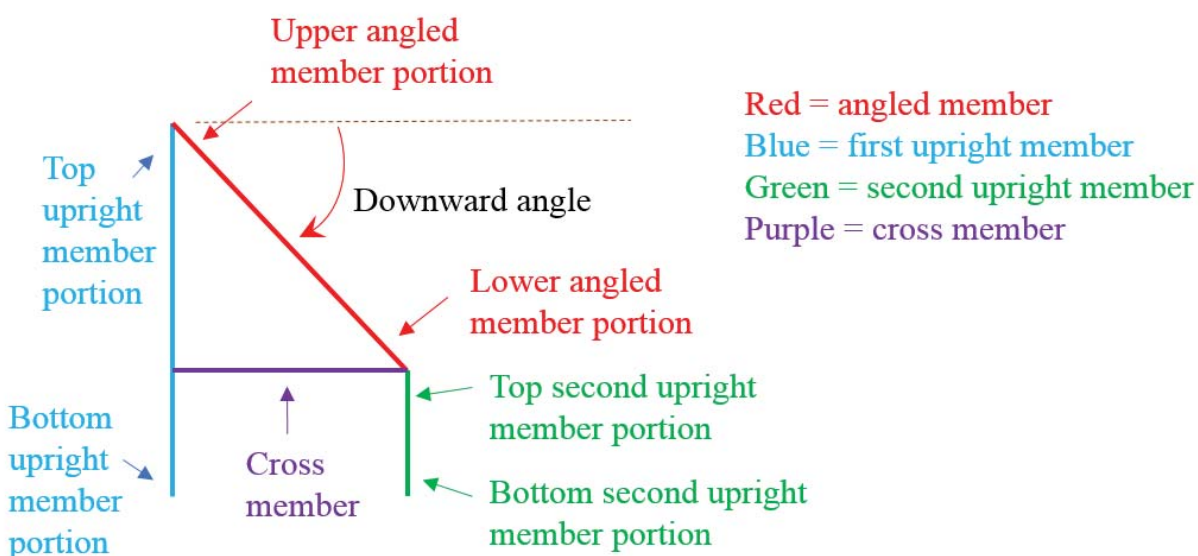


Figure 18. A side frame of Figure 1 of Guo with different parts of the frame highlighted. The same color scheme has been used in my highlighting of Figure 1 of Guo.

²⁶ Ex. 1004 (Guo) at Abstract.

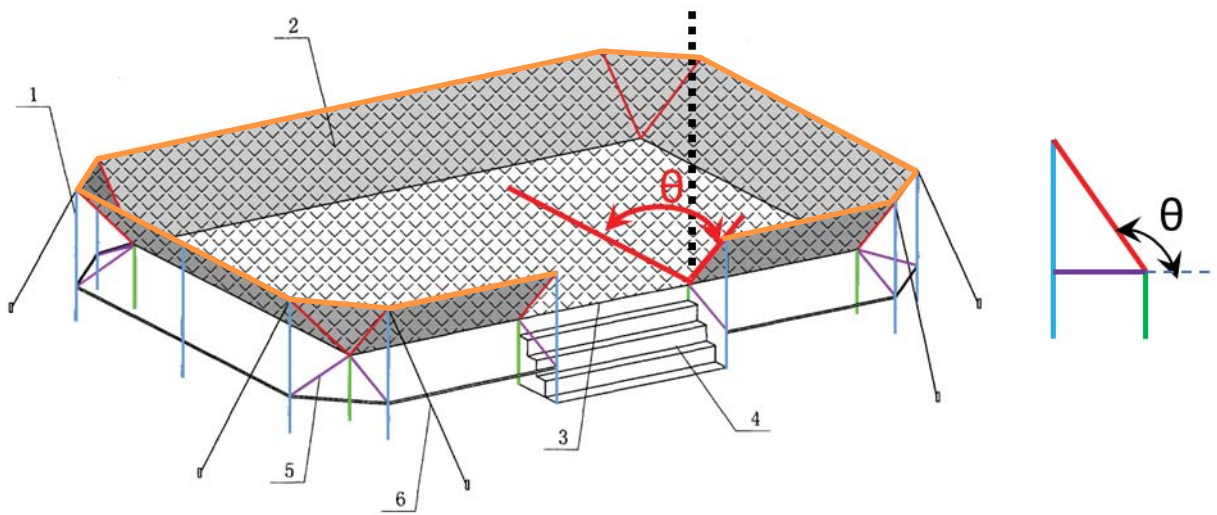


图1

Figure 19. The angle between the horizontal trampoline deck and the side wall is labeled theta (θ) and is greater than 90° because the wall slopes outward.

68. The side frames have also been shaded grey in Figure 19 of Figure 1 of Guo above. As can be seen from that figure, the plurality of side frames defines walls that slope outward. I have labeled the angle between the trampoline deck and one outer wall as theta (θ) in my Figure 19 above, which shows the trampoline arena on the right and one side frame on the left. Because θ is greater than 90° , the outer wall is outwardly sloping. The dotted black line shows the vertical (which is at 90° with the horizontal). I have also shown this angle θ in my Figure 19 of the individual side wall on the left. All the claims listed in Guo require an outwardly sloping side wall, with an angle between the horizontal and the sidewall of greater than 90° . Therefore, Guo meets the claim 1 element “a plurality of side frames defining an outwardly sloping outer wall.”

c) each of the plurality of side frames including: a rigid first upright member having a top first upright member portion and a bottom first upright member portion mountable to a floor

69. In Figure 18, where the members of one side frame are shown, a first upright member is highlighted blue and a second upright member is highlighted green. I have also highlighted the first upright member of the plurality of side frames in blue in Figure 1 of Guo.

70. As can be seen from Figure 1 of Guo (my Figure 13), and even more clearly from my Figure 18 of just one side frame, the first upright member shown in blue must be able to handle a compressive load²⁷ (and therefore be rigid). The weight of the red member is borne by both the first upright member (blue) and a second upright member (green). This weight results in a compressive load on both the first upright member and the second upright member.

71. The first upright member also sees compressive loads from the cable 6. As explained in Guo, “[t]he length of the frame fixation ropes 6 can be adjusted to tighten the connection between the stereoscopic trampoline frame and the floor.” Guo, paragraph [0023]. As the frame fixation ropes 6 are tightened, the compressive load on the first upright member increases. The first upright member

²⁷ A compressive load is illustrated in my Figure 5.

also sees compressive loads from the top frame of the trampoline arena, as can be seen in Figure 1 of Guo.

72. As discussed above, members that see compressive loads must be rigid.²⁸ See ¶¶ 37, 71. Therefore, a POSITA would understand the first upright member to be rigid. A simpler way to understand this is that even a cursory examination of the structure in Figure 1 of Guo reveals that if the upright member highlighted in blue were replaced by a cable that is not under tension, and therefore not rigid, the structure would likely collapse. For example, if the frame were not rigid, the trampoline material could not be drawn taut, the trampoline material could not provide the resilient “bounce” expected in a trampoline, and the frame structure would lose its shape. Moreover, if the frame were not rigid, the upright members would not be able to maintain the horizontal trampoline netting above the ground or maintain the obtuse angle of the sidewall with respect to the horizontal plane.

73. Looking at either my Figure 18 or my Figure 19, the top first upright member portion is the end of the first upright member that connects to the red angled member. The bottom first upright member portion is the end of the first upright member that connects to the floor. I have labeled a top first upright

28

member portion and the bottom first upright member portion of the first upright member in my Figure 18, which has a single side frame of Figure 1 of Guo head-on. The bottom first upright member portion is mountable to a floor because it is meant to interface or interact with the floor.

74. Although Guo's Figures do not show the bottom first upright member portion in zoomed-in detail, a POSITA would understand that such structural members are designed to interact with and rest on the floor. In addition, a POSITA would have known that members designed to interact with the floor can be easily anchored to the floor for additional stability. Any number of ways would have been obvious in view of Guo's disclosure to mount bottom frame members to the floor, including, for example, using ropes, rivets, brackets, bolts, welds, or stakes. In addition, a POSITA would have known that frame members may have additional structure for facilitating easier mounting, such as a wider base, flanges, or additional features that make it easier to temporarily or permanently attach the frame to the floor. In addition, it would have been obvious to design the frame to slide into a base (or flange) that is permanently mounted to the floor.

75. Thus, to the extent Guo does not disclose vertical posts that are "mountable," it would have been obvious to a POSITA to make the bottoms of the vertical posts mountable to the floor using any of the well-known structures I described above for facilitating the mounting of a frame structure to the floor. See

¶¶ 41-43, 62, 71, 73, and 74. A POSITA would have been motivated to do so for added stability. For example, Guo teaches that attaching the vertical members to the floor improves the safety of the trampoline.²⁹ A POSITA would have known that any number of structures, including ropes, rivets, stakes, or flanges that that engage with the floor, would have been suitable ways to mount the bottoms of the vertical posts to the floor for added stability and safety. Using any type of floor-mounting structure would have been an obvious application of known structures (e.g., floor-engaging flanges) according to their known function (e.g., engagement with the floor) with a predictable result (e.g., improving the stability of the structure with respect to the floor and therefore its safety).

d) a rigid angled member connected at an upper angled member portion to the top first upright member portion and extending at a downward angle therefrom to a lower angled member portion, a plurality of voids being defined between the plurality of angled members

76. As can be seen in my Figure 18 and Figure 19, I have highlighted the rigid angled members in red, the first upright members in blue and the second upright members in green in Figure 1 of Guo. In Guo, the upper angled member portion is connected to the top first upright member portion and the rigid angled member extends at a downward angle such that lower angled member portion of the angled member is connected to the second upright member and the trampoline

²⁹ Ex. 1004 (Guo), ¶ [0023].

deck. This can be seen above from my Figure 19 and more clearly from my Figure 18 of just the side frame. The rigid angled members highlighted in red define voids that are horizontally between the rigid angled members. I have shaded these voids grey in my Figure 19. In Guo, trampoline nets are secured to the red angled members that comprise the side (outer) walls and a POSITA would understand that these angled members must be rigid to safely support the trampoline net. When a person jumps on the side angled trampoline net, a bending force is applied on the angled members. A non-rigid member would not be as safe under bending loads and a POSITA would understand the angled members to be rigid. Therefore, Guo meets the claim 1 element “each of the plurality of side frames including . . . a rigid angled member connected at an upper angled member portion to the top first upright member portion and extending at a downward angle therefrom to a lower angled member portion, a plurality of voids being defined between the plurality of angled members.”

e) a horizontally-extending deck connected to the lower angled member portions of the plurality of side frames

77. As can be seen in my Figure 20, I have highlighted the rigid angled members in red in Figure 1 of Guo. A wide red horizontally extended arrow is aligned on the horizontally-extending deck, and surrounded by decking frame members (highlighted in yellow below). The deck framing connects to the red

angled members at the lower angled member portions. For clarity, I circled the connection points in my Figure 20.

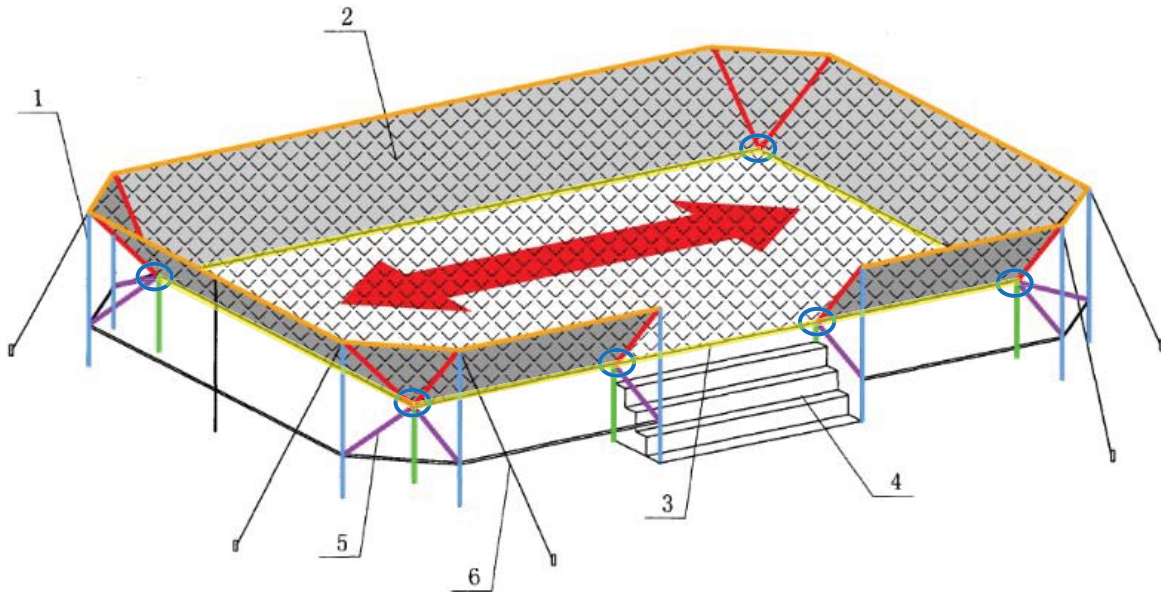


图1

Figure 20. Figure 1 of Guo with highlighting added. The red arrow is along the horizontally extending deck which is framed by deck framing highlighted in yellow and connected to the angled members highlighted in red at the lower member portions. The connection is circled in blue.

78. Therefore, Guo meets the claim 1 element “a horizontally-extending deck connected to the lower angled member portions of the plurality of side frames.”

f) a plurality of trampolines connected to the angled members along peripheries thereof and extending across the plurality of voids

79. Guo discloses that the trampoline net is installed on the side walls and horizontal deck: “The present invention relates to ... a stereoscopic safe trampoline

whose side walls are installed with trampoline net ... The present invention adopts the design of a stereoscopic trampoline net where the side walls of stereoscopic trampoline net are also provided with trampoline net to form a three-dimensional spatial trampoline that effectively improves safety, increases landing area during jumps, prevents one from falling off the trampoline jumping surface, and makes trampoline jumping much more interesting.”³⁰ In my Figure 20, which is a reproduction of Figure 1 of Guo with added highlights, shading and a wide red arrow, the angled members are highlighted in red and the voids between the angled members are shaded grey. The trampoline nets are installed across the voids and are connected to the angled members. Therefore, Guo meets the claim 1 element “a plurality of trampolines connected to the angled members along peripheries thereof and extending across the plurality of voids.”

g) a padding assembly including a plurality of pads at least partially overlying the angled members and the peripheries of the trampolines

80. Guo discloses this claim element. As explained above, Guo discloses trampolines connected to the angled members along the peripheries. See ¶ 79 above. Guo further discloses padding: “The trampoline net is made from a plurality of trampoline nets pieced together, to achieve the goal of the trampoline net having

³⁰ Ex. 1004 (Guo), Abstract.

a bigger usable area, with protective padding installed on each joint between adjacent trampoline nets, and the protective padding is made of cotton material.”³¹ Because the joint between each adjacent trampoline would be at the periphery of each trampoline, Guo discloses that the pad at least partially overlays at least the peripheries of the trampolines. In addition, Guo’s trampoline material extends across the full perimeter of the frame, including at and along the angled members, to fill each of the voids. Given that Guo’s net is made from a plurality of trampoline nets pieced together, it is inevitable that when protective padding is installed on each joint between adjacent trampoline nets, at least a portion of the angled members are also covered.

81. In addition, to the extent not disclosed by Guo, this element would have been obvious in view of Guo. It was well known to use padding for the purpose of covering the joints between individual trampolines for safety. At the joints between the individual trampolines are rigid members and potentially some gaps between the connection points of the trampolines. The rigid members are a safety concern because a person accidentally jumping from a location on the trampoline to the rigid member or to a gap at the connection points of the trampolines is likely to sustain injury. Covering these locations with padding that

³¹ Ex. 1004 (Guo), 7:[0025].

extends to the peripheries of the trampolines to ensure coverage improves the safety of the trampoline arena. Covering these hazards would allow for a larger jumping area, and the user would not be forced to stay clear of the joints. This is consistent with Guo's teaching that padding provides a protective layer and that one of the goals of his design is to create a "trampoline net having a bigger usable area."³²

82. This understanding is also consistent with teachings in numerous other prior art references that discloses the use of padding to cover the edges of the trampolines and frame members for safety. See ¶ 44 above. For example, as seen in detail in Figure 4 of Winkelhorn, reproduced below as my Figure 21, the padding assembly (29) covers both the grid between trampolines (27a, 27b), the springs that connect the trampolines to the grid (28) and the edges of the trampoline (26).

³² Ex, 1004 (Guo), 7:[0025].

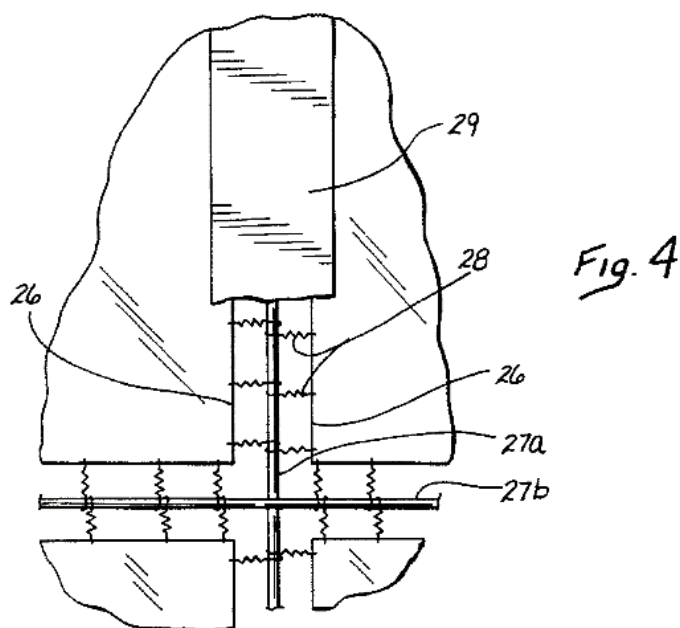


Figure 21. Figure 4 of Winkelhorn showing padding overlapping the frame and trampoline edges.

83. This understanding is also consistent with Nissen that teaches covering the connections between the trampoline and the frame with padding material for safety:

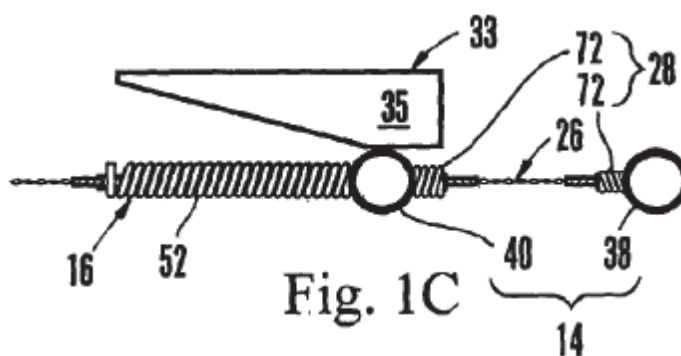


Figure 22. Figure 1C of Nissen showing padding covering the joints between the frame and the edges of the trampoline.

84. This understanding is also consistent with Grelle, who teaches that the padding “eliminate[s] the hazards of injury to a jumper from striking the trampoline frame or from slipping between the springs.”³³ As shown for example in Figures 2 and 10, to prevent a user’s foot from slipping between the springs, Grelle’s padding covers the trampoline deck’s outer frame and the peripheries of the trampoline.

85. Therefore, Guo either discloses or renders obvious the claim element “a padding assembly including a plurality of pads at least partially overlying the angled members and the peripheries of the trampolines.”

B. Claim 2

The trampoline arena of claim 1, wherein each of the plurality of side frames further includes a rigid cross member extending between the first rigid upright member to the lower angled member portion.

86. In my Figure 18 and my Figure 19, the first rigid upright member is highlighted blue, the angled member is highlighted red, and the cross member is highlighted purple. The rigid cross member in Guo is disclosed as a tensioned rope (i.e., “net fixation ropes” labeled with numeral 5).³⁴ Although rope is not generally

³³ Ex. 1008 (Grelle), 1:13-18

³⁴ Ex. 1004 (Guo), 6:[0022] (“The length of the net fixation ropes 5 can be adjusted to tighten the connection between the stereoscopic trampoline net and the stereoscopic trampoline frame.”)

considered a rigid object because it is flexible and does not maintain its own shape, when rope is placed under tension, it is necessarily a rigid object. Thus, a tensioned rope is a rigid object because while under tension, the rope maintains its shape and is not flexible. In order to serve its function of holding the trampoline net taut across the frame, rope 5 must be rigid.

87. Even if a tensioned rope does not disclose a rigid frame member because it is not permanently rigid (*i.e.* is not rigid when it is not under tension), using a member that maintains its rigidity when not in use would have been obvious to a POSITA. A POSITA would have understood that Guo's tensioned ropes could be replaced by a tension rod to improve the look, durability, and rigidity of the frame. As discussed above, a POSITA would also be inclined to replace the rope with a tension rod because the cross member is a short span. See ¶¶ 36, 37. A POSITA would have also understood that using a tension rod instead of a rope for the cross member would still allow for adjustments in length to the cross member. The rigidity of such rope is increased when adjusted (*e.g.* shortened) "to tighten the connection between the stereoscopic trampoline net and

the stereoscopic trampoline frame.”³⁵ “The net fixation ropes 5 may connect using hasps, hooks, belts, nooses or springs.”³⁶

88. A POSITA would have been motivated to further increase the rigidity of such fixation components to enhance the stability and therefore safety of Guo, by, upon determining the appropriate length of such fixation components, supplementing or replacing the rope portion with frame segments cut to the appropriate length. Such reinforcement or substitution would be easy to make and further facilitate the connection between the stereoscopic trampoline net and the stereoscopic trampoline frame, as POSITA(s) would understand that a completely rigid cross member would provide increased support over rope 5.

89. In addition, the cross members could see some small compressive loads from a person jumping onto a side wall or more significant compressive loads from something bumping the overall trampoline arena. As discussed above, a POSITA would be motivated to use a truss member to withstand these loads and also to generally improve the stability, and hence safety, of the side frames. See ¶¶ 34-37 above.

³⁵ Ex. 1004 (Guo), 6:[0022].

³⁶ Ex. 1004 (Guo), 7:[0022].

90. A POSITA would have also found this substitution obvious because it would have been a simple substitution of one known device (tensioned rope) with another known device (permanently rigid frame member) according to its known function (provide tension) to provide a predictable result (increased stability) as I described earlier. See ¶¶ 34-37 above.

91. Therefore, Guo discloses or renders obvious the additional features of this claim.

C. Claim 3

The trampoline arena of claim 2, where each of the plurality of side frames further includes a rigid second upright member having a top second upright member portion connected to the lower angled member portion and a bottom second upright member portion mountable to a floor.

92. Guo discloses or renders obvious the additional features of this claim. As can be seen in my Figure 18 and my Figure 19, the rigid second upright member is highlighted green, and the angled member portion is highlighted red. The top second upright member portion is connected to the lower angled member portion. The shorter, vertical post is part of the side frame structure that maintains the desired height of the horizontal trampoline deck above the floor.

93. As discussed above for the first upright member, a POSITA would have understood the second upright member to be rigid. If it were not rigid, the trampoline net in Guo would likely collapse with compressive loads. See ¶¶ 70-72.

94. As also discussed above for the first upright member, a POSITA would have understood that the second upright member of Guo (green) is mountable to a floor at a bottom upright member portion (indicated in my Figure 18) because it is designed to interact/interface with the floor. See ¶¶ 73-75.

95. Even if the bottom upright member portion of Guo were not “mountable to a floor,” making the post mountable to the floor would have been obvious to a POSITA as discussed above with respect to the first upright member. A POSITA would have been motivated to use mountable posts in order to add stability and safety to the frame structure by including structure that would make the bottom of the post “mountable” to the floor (as explained above). See ¶¶ 73-75. Therefore, Guo discloses or renders obvious the additional features of claim 3.

D. Claim 4

The trampoline arena of claim 3, wherein the rigid cross member includes a first cross member end connected between the top and bottom first upright member portions and a second cross member end connected at a junction of the lower angled member portion and the top second upright member portion.

96. Guo discloses or renders obvious the additional features of this claim. As can be seen in my Figure 18 and my Figure 19, the rigid second upright member is highlighted green, and the angled member portion is highlighted red. The top second upright member portion is connected to the lower angled member portion. For the same reasons I discuss above with respect to Claim 3, Guo discloses or renders obvious the additional features of this claim. See ¶¶ 92-95.

E. Claim 5

The arena of claim 1, wherein the outer wall substantially surrounds the deck.

97. Guo discloses the additional features of this claim. As can be seen in my Figure 18 and my Figure 19, the angled wall of Guo's trampoline arena surrounds the horizontal deck, except at "safety exit 3" where a detachable trampoline net can be installed.³⁷ Thus, the Guo discloses an outer wall that substantially surrounds the horizontal deck.

F. Claim 6

The arena of claim 1, wherein at least one of the plurality of voids is not covered such that an access opening for the trampoline arena is formed.

98. Guo also discloses or renders obvious the additional features of claim 6 for the same reasons I explain under claim 5. See ¶ 97. Guo discloses that a "detachable trampoline net 7" can be removed from a portion of the frame at the "safety exit 3" in order to allow access into and out of the arena.³⁸ Thus, the Guo discloses an access opening in a void between side frames of the outer wall of the trampoline arena.

G. Claim 7

The arena of claim 1, further comprising: at least one upper frame member interconnecting the plurality of side frames.

³⁷ Ex. 1004 (Guo), 6:[0013], 6:[0021], and 8:[0036].

³⁸ Ex. 1004 (Guo), 8:[0036].

99. Guo discloses the additional features of this claim. As can be seen from my Figure 19, the upper frame member is highlighted orange and the plurality of side frames are highlighted red, blue, green, and purple. Guo also discloses, via its “stereoscopic trampoline frame” depicted in Figure 1, at least one upper frame member (highlighted in orange) interconnecting the plurality of side frames, including at the corners of the frame (“[t]he stereoscopic trampoline frame is connected and fixed to the floor by means of frame fixation ropes 6 disposed at the various corners thereabove”).³⁹ The upper frame members (highlighted in orange) are interconnecting the plurality of side frames in order to provide stability for the frame since “[t]he stereoscopic trampoline frame is connected and fixed to the floor by means of frame fixation ropes 6 disposed at the various corners thereabove.” A POSITA would understand that without such upper frame members, and under tension of frame fixation ropes 6, the side walls that hold the trampoline nets in Guo would not have lateral stability. Therefore, Guo discloses the additional features of claim 7.

H. Claim 9

The arena of claim 7, wherein the at least one upper frame member includes a plurality of upper frame members.

³⁹ Ex. 1004 (Guo), 7:[0023], Figs. 1-3.

100. As can be seen from my Figure 13, the upper frame member includes multiple upper frame members (orange). Joints between the individual upper frame members occur at the top first upright member portions and top angled member portions.

101. Although Guo does not explicitly explain whether the upper frame is a single piece or constructed from a plurality of frame segments, it would have been obvious in view of Guo to construct the upper frame from multiple segments because a POSITA would have found it obvious to construct the upper frame out of any number of frame members. A POSITA would have been motivated by Guo's teaching to avoid structures that "require larger space during transportation."⁴⁰ A POSITA would have known that using a plurality of joined-together frame members would provide for an easier way to disassemble and transport the arena, whereas the single piece would consume a larger storage space.

102. In addition, a POSITA would have been motivated to construct the upper frame from multiple members in order to provide flexibility in modifying the size of the arena to fit to the available space when transported; if constructed from a single piece, the arena would be is limited to a fixed size for the arena.

⁴⁰ Ex. 1004 (Guo), 4:[0002].

103. In addition, it would have been obvious to try multiple frame members because there are only two ways of constructing a frame, both of which were well-known: either (1) formed from a single piece of material or (2) formed from a plurality of frame members joined together.

104. Therefore, Guo meets the claim 9 element “the arena of claim 7, wherein the at least one upper frame member includes a plurality of upper frame members.”

I. Claim 18

The arena of claim 1, wherein corners of the outer wall include a pair of generally perpendicular side frames connected by generally horizontal upper and lower corner members, such that trampoline covered voids are formed at the corners of the outer wall located at angles from adjacent sides of the outer wall.

105. Guo does not explicitly disclose a horizontal lower corner member because, as can be seen in my Figure 13 annotating Guo Figure 1, the lower portions of the angled members are joined directly together. It would have been obvious to a POSITA to join the lower angled members with an intermediate horizontal corner member in order to soften the sharpness of the corner to improve safety. A POSITA would have been motivated by Guo’s teaching that sharp angles in a trampoline arena are undesirable and hazardous, and Guo teaches using

more gentle angles (*e.g.*, for the sidewall).⁴¹ In addition, Guo teaches using different shapes for the horizontal deck frames, and it would have been obvious to a POSITA to add an intermediate lower corner member in order to try a differently-shaped horizontal deck, depending on the environment in which the trampoline is located.⁴² For example, when the environment dictates an 8-sided polygon instead of a 4-sided square for the horizontal deck, it would have been obvious to insert additional decking members at the corners of the square in order to create an 8-sided polygon. Accordingly, the additional features of claim 18 would have been obvious over Guo.

IX. Ground 2: Guo in view of Publicover renders obvious claims 8, 10, and 19.

J. Claim 8

The arena of claim 7, wherein each of the plurality of side frames further includes an upper bracket connected to the top first upright member portion and receiving the at least one upper frame member.

106. As discussed above, Guo discloses or renders obvious all of the elements of claim 7. See ¶ 99. While Guo does not specifically detail how the

⁴¹ Ex. 1004 (Guo), 4:[0002] (“[V]ertical rods are hazardous”); Guo, 5:[0004] (“[T]he angle included between the side wall . . . and the bottom of the stereoscopic trampoline net is greater than or equal to 90° and smaller than 180°”).

⁴² Ex. 1004 (Guo), 7:[0024] (“The bottom of the stereoscopic trampoline net may also be one of an equilateral polygon, a triangle or a circle, depending on the different environments and the requirements of different people.”)

members of the frame are connected, it would have been obvious to a POSITA to connect frame members with brackets. As discussed above, brackets are the most common way to connect members of a frame or truss and it would have been obvious to a POSITA to connect the top first upright member portion (blue in my Figure 13) to the upper frame member (orange in my Figure 13) using brackets in order to form strong stable connections, as was well known in the art. See ¶¶ 38-40 above. This would have been a simple substitution of a familiar element (joint substituted for a bracket) in its expected way (for frame connections) to achieve its predictable result of securely connecting the pieces of frame. Using a bracket for a connection would have been an obvious design choice from among well-known ways of connecting two frame elements together (*e.g.*, with bolts, welding, ties, fasteners, etc.) with known trade-offs (*e.g.*, costs, ease of construction/deconstruction, stability, durably, etc.) as brackets are routinely used in framing applications, including for trampolines. See ¶¶ 38-40 above.

107. Publicover teaches using brackets to connect an upper vertical frame member to and receive a horizontal frame member.⁴³ Publicover explains that brackets allow the frame to be constructed of separate members that are securely

⁴³ Ex. 1006 (Publicover), 11:65-12:21.

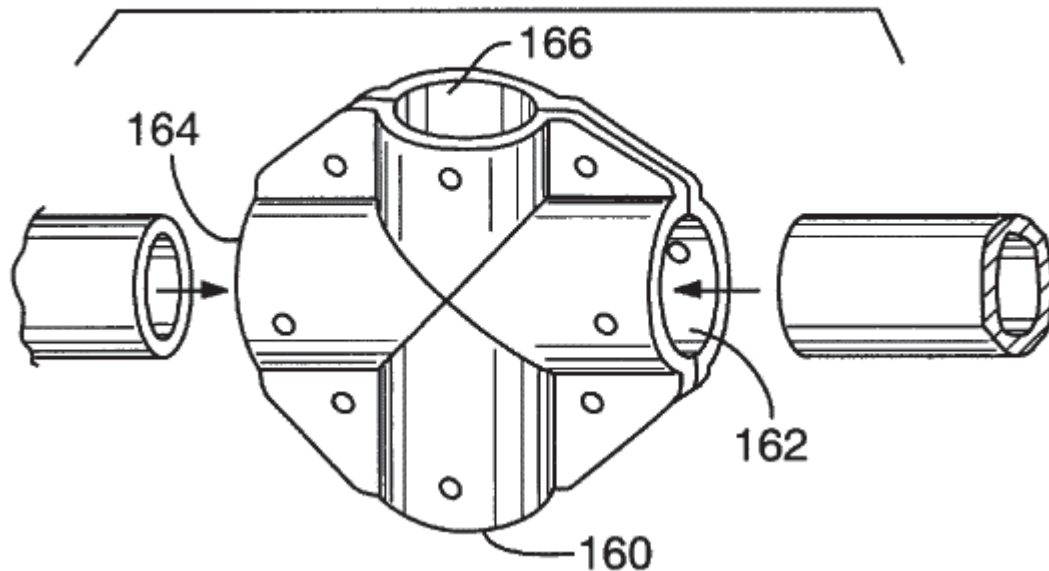
fastened together.⁴⁴ Publicover teaches that a horizontal portion can be connected to and received in the bracket.⁴⁵ Publicover Figure 10, below, shows one example of such a bracket that is designed to connect and receive intersecting frame members, and a POSITA would have known that “[m]yriad other such variations will be apparent.”⁴⁶

⁴⁴ Ex. 1006 (Publicover), 11:65-67 (“Suitable wall-support posts can be mounted so that they extend upwardly from a trampoline frame, and do not extend to the ground.”)

⁴⁵ Ex. 1006 (Publicover), 12:5-9 (“The bracket can be designed to receive free ends of four separate tubing members as illustrated. Or, a passage way can be provided through the bracket, horizontally and/or vertically, so that the bracket can be secured at a location between the free ends of a tube.”)

⁴⁶ Ex. 1006 (Publicover), 12:20-21.

FIG. 10



108. A POSITA would have immediately recognized that brackets, such as those disclosed in Publicover, would provide a simple and secure way of connecting individual frame elements when building a trampoline arena like Guo's. This would support Guo's goal of requiring less space for transportation because a POSITA would have known that smaller, individual frame pieces connected by brackets would require less space and would be easier to disassemble, transport, and reassemble than a side-frame constructed from a single, continuous piece.⁴⁷ Accordingly, it would have been obvious to use brackets to securely connect the upright frame members to the horizontal members and this limitation would have been obvious over Guo in view of Publicover.

⁴⁷ Ex. 1004 (Guo), 4:[0002].

K. Claim 10

The arena of claim 1, wherein each of the plurality of side frames further includes a lower bracket connected to the lower angled member portion and attaching the deck thereto.

109. While Guo does not specifically detail how the members of the frame are connected, it would have been obvious to a POSITA to connect frame members with brackets. As discussed above, brackets are the most common way to connect members of a frame or truss and it would have been obvious to a POSITA to connect the deck frame members (yellow in my Figure 13) to the angled frame members (red in my Figure 13) using brackets in order to form strong stable connections, as was well known in the art. See ¶¶ 38-40 above.

110. For example, Publicover teaches using brackets to connect the horizontal deck to the vertical frame members.⁴⁸ Publicover explains that brackets allow the frame to be constructed of separate members that are securely fastened together.⁴⁹ Publicover teaches that a horizontal portion can be connected to and received in the bracket.⁵⁰ Publicover Figure 3, below, shows one example of such

⁴⁸ Ex. 1006 (Publicover), 11:65-12:21.

⁴⁹ Ex. 1006 (Publicover), 11:65-67 (“Suitable wall-support posts can be mounted so that they extend upwardly from a trampoline frame, and do not extend to the ground.”).

⁵⁰ Ex. 1006 (Publicover), 12:5-9 (“The bracket can be designed to receive free ends of four separate tubing members as illustrated. Or, a passage way can be provided

would support Guo's goal of requiring less space for transportation because a POSITA would have known that smaller, individual frame pieces connected by brackets would require less space and would be easier to disassemble, transport, and reassemble than a side-frame constructed from a single, continuous piece.⁵² Accordingly, it would have been obvious to use brackets to securely connect the upright frame members to the horizontal members and this limitation would have been obvious over Guo in view of Publicover.

B. Claim 19

A trampoline arena comprising:

a plurality of rigid side frames defining a wall, a plurality of voids being defined between the plurality of side frames, each of the plurality of rigid side frames comprising an upper bracket and a deck bracket, the plurality of side frames interconnected at the upper brackets by a plurality of upper frame members;

a plurality of trampolines connected to the side frames along peripheries thereof and extending across the plurality of voids;

a padding assembly including a plurality of pads at least partially overlying the side frames and the peripheries of the trampolines; and

a trampoline covered deck connected to the plurality of side frames at the deck brackets.

112. Claim 19 is essentially the same scope as claim 1, except that it includes additional bracket limitations for connecting the upper frame members and for connecting the deck. Thus, for the reasons stated above with respect to claims 1 (basic structure), claim 7 (upper frame), claim 8 (upper bracket), and 10

⁵² Ex. 1004 (Guo), 4:[0002].

(deck bracket), Guo in view of Publicover renders obvious claim 19. See ¶¶ 66-85, 99, 106-108, 109-111.

X. Ground 3: Guo in view of Publicover and Grelle renders obvious claims 11-15.

A. Claim 11

*The arena of claim 10, wherein the deck comprises:
A plurality of intersecting longitudinal and transverse deck frame elements, a plurality of deck voids being defined between the plurality of intersecting longitudinal and transverse deck frame elements; and*

113. Grelle discloses the additional features of this claim. Grelle discloses a plurality of intersecting longitudinal and transverse deck frame elements, a plurality of deck voids being defined between the plurality of intersecting longitudinal and transverse deck frame elements, as shown in Figures 1 and 2 of Grelle, reproduced below as my Figure 23. As explained in Grelle, “FIGURE 1 is a plan view illustrating the general layout of a multiple unit trampoline center constructed in accordance with the invention.”⁵³ “FIGURE 2 is a more detailed view of a single trampoline unit illustrating the attachment of the rebound springs and the location and manner of attachment of the spring covers.”⁵⁴

⁵³ Ex. 1008 (Grelle), 1:49-51.

⁵⁴ Ex. 1008 (Grelle), 1:52-55.

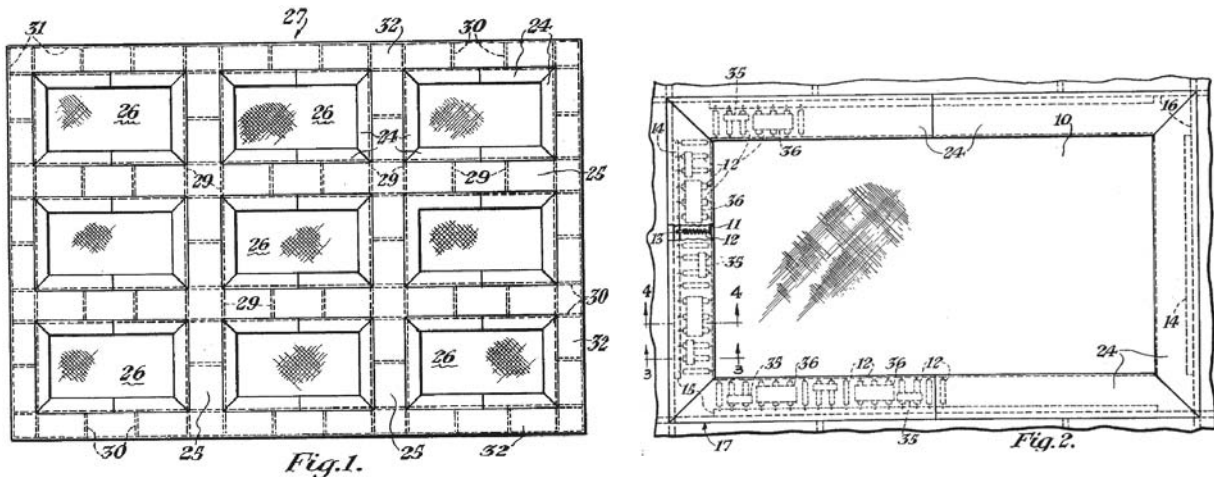


Figure 23. Reproduction of Figure 1 and Figure 2 of Grelle

114. Item 17 (Figure 2) in Grelle is a “box frame” that “may be made of metal or a rigid plastic,”⁵⁵ and “each trampoline is entirely within its box frame.”⁵⁶ Comprised of multiple such box frames connected together (Figure 1), the supporting frame structure in Grelle thus includes intersecting longitudinal and transverse deck frame elements, a plurality of deck voids being defined between the plurality of intersecting longitudinal and transverse deck frame elements.

115. Grelle extends the width of the longitudinal and transverse deck elements so that the plurality of intersecting longitudinal and transverse deck frame elements can support walkways.⁵⁷

⁵⁵ Ex. 1008 (Grelle), 2:31-40.

⁵⁶ Ex. 1008 (Grelle), 2:50-55.

⁵⁷ Ex. 1008 (Grelle), 2:55-58, Figure 1.

116. It would have been obvious for a POSITA to add the frame elements of Grelle to Guo's trampoline arena in order to support a greater number of trampolines and an overall larger trampoline arena. As the trampoline area gets bigger, the response of the trampoline near the center starts to become significantly different than nearer the edges. Dividing the trampoline into multiple segments alleviates this problem. In addition, at some point when the area becomes too large the deflection of the trampoline at the center becomes unsafe or the trampoline must become so stiff as to render portions unusable as a trampoline. Having separate trampoline sections also allows multiple users to enjoy the trampoline arena together without affecting each other. Guo also teaches that "[t]he trampoline net is made from a plurality of trampoline nets pieced together, to achieve the goal of the trampoline net having a bigger usable area."⁵⁸ Therefore, it would have been obvious to add Grelle's deck features to Guo's trampoline arena.

A plurality of deck trampolines connected to the plurality of intersecting longitudinal and transverse deck frame elements along peripheries thereof and extending across the plurality of deck voids.

117. Grelle also discloses this additional feature of claim 11. Grelle discloses that each item 10 (Figure 2) or item 26 (Figure 1) is a trampoline

⁵⁸ Ex. 1004 (Guo), 7:[0025].

connected to a plurality of intersecting longitudinal and transverse deck frame elements along peripheries thereof and extending across the deck void formed by each box frame (item 17, Figure 2).⁵⁹ Figure 1 of Grelle, shown above as my Figure 23, shows a plural number of such box frames with each box frame including a trampoline.⁶⁰ Grelle thus discloses a plurality of deck trampolines connected to the plurality of intersecting longitudinal and transverse deck frame elements along peripheries thereof and extending across the plurality of deck voids. As I explained above with the prior element of claim 11, it would have been obvious for a POSITA to add Grelle's deck features, including these, to Guo's trampoline arena. See ¶¶ 113-116.

B. Claim 12

The arena of claim 11, wherein the plurality of intersecting longitudinal and transverse deck frame elements are rigid elements.

118. Grelle discloses the additional features of claim 11.

119. As I discussed above, each trampoline "box frame" in Grelle's deck "may be made of metal or a rigid plastic."⁶¹ See ¶ 114. Thus, Grelle discloses deck

⁵⁹ Ex. 1008 (Grelle), 2:20-26; 2:50-55.

⁶⁰ Ex. 1008 (Grelle), 2:50-55.

⁶¹ Ex. 1008 (Grelle), 2:31-40.

frame elements that are rigid. As I explained above with claim 11, it would have been obvious for a POSITA to add Grelle's deck features, including its rigidity, to Guo's trampoline arena. In addition, such a combination would have been predictable to a POSITA to enhance the stability and safety of Guo's trampoline arena with rigid trampoline box frame elements.⁶²

120. Therefore, Guo in view of Grelle meet the claim 12 element "the arena of claim 11, wherein the plurality of intersecting longitudinal and transverse deck frame elements are rigid."

C. Claim 13

The arena of claim 11, wherein the padding assembly at least partially overlays plurality of intersecting longitudinal and transverse deck frame elements and the peripheries of the deck trampolines.

121. Grelle discloses the additional features of this claim. As was discussed above with respect to claim 1, Guo discloses a padding assembly including a plurality of pads at least partially overlying the angled members and the peripheries of the trampolines.⁶³ Grelle similarly discloses a shock absorbing

⁶² Ex. 1008 (Grelle), 1:8-18, 1:37-38; Ex. 1004 (Guo), 4:[0001].

⁶³ Ex. 1004 (Guo), 7:[0025].

layer overlaying the peripheries of its trampoline box frames.⁶⁴ Both references thus disclose pads to cover the joints between individual trampolines.

122. As I explained above with claim 11-12, it would have been obvious for a POSITA to add Grelle's deck features to Guo's trampoline arena. See ¶¶ 113-120. For those same reasons, it would have been obvious to include Grelle's padding that covers the deck frame elements. In addition, a POSITA would have been motivated to use Grelle's padding to cover rigid frame elements because Grelle teaches that the padding "eliminate[s] the hazards of injury to a jumper from striking the trampoline frame or from slipping between the springs."⁶⁵ As shown for example in Figures 2 and 10, to prevent a user's foot from slipping between the springs, Grelle's padding covers the trampoline deck's outer frame and the peripheries of the trampoline. As such, these additional features would have been obvious over Guo, Publicover, and Grelle.

D. Claim 14

The arena of claim 11, further comprising: a plurality of support legs supporting the longitudinal and transverse deck frame elements.

⁶⁴ Ex. 1008 (Grelle), 1:27-32; 3:1-31.

⁶⁵ Ex. 1008 (Grelle), 1:13-18.

123. Grelle discloses the additional features of this claim. As seen from Figures 6-9 of Grelle, below, Grelle discloses that each trampoline “box frame” is supported by braces.

Fig. 6. Fig. 7. Fig. 8. Fig. 9.	“Each box frame is supported from the ground near its corners and at intervals along the length of its members as required to give sufficient: rigidity to the box frame and the platform by braces indicated generally by the numeral 47. As shown in FIGURES 6, 7, and 8, respectively, these braces may have two, three or four platform supporting arms or links as required depending on their location under the platform structure. The same basic elements are used in constructing either the two, three or four arm braces.”
Ex. 1008 (Grelle), Figures 6-9.	Ex. 1008 (Grelle), 4:11-20 (emphasis added).

124. Grelle discloses braces (Figure 6), braces for T junctions (Figure 7), and braces for corners (Figure 8) of the trampoline box frames.⁶⁶ Grelle thus discloses a plurality of support legs supporting the longitudinal and transverse deck frame elements.

⁶⁶ Ex. 1008 (Grelle), 4:52-70.

125. As I explained above with claim 11-13, it would have been obvious for a POSITA to add Grelle's deck features, including the supporting legs, to Guo's trampoline arena. See ¶¶ 113-122. For those same reasons, it would have been obvious to include Grelle's support braces to support the deck frame elements. In addition, a POSITA would have been motivated to use support legs in order to build a bigger trampoline deck. A POSITA would have recognized that as the length of the longitudinal and transverse deck frame elements increases, the risk of increased deflection and failure of the frame elements increases. By providing additional support legs supporting the longitudinal and transverse deck frame element, the bending stresses in the frame elements decrease and make the trampoline arena more stable and safe. As such, these additional features would have been obvious over Guo, Publicover, and Grelle.

E. Claim 15

The arena of claim 14, wherein the plurality of support legs are arranged at least one of: intersections of the longitudinal and transverse deck frame elements and midpoints between the intersections of the longitudinal and transverse deck frame elements.

126. Grelle discloses the additional features of this claim. Grelle discloses that the braces are located at the intersections of the deck frame elements.⁶⁷ Grelle

⁶⁷ Ex. 1008 (Grelle), 4:64-65 ("Braces with four supporting arms may be provided at the corners of the box frames.").

also discloses that the braces are located at midpoints along the deck frame elements.⁶⁸

127. As I explained above with claims 11-14, it would have been obvious for a POSITA to add Grelle's deck features, including the supporting legs, to Guo's trampoline arena. See ¶¶ 113-125. For those same reasons, it would have been obvious to include Grelle's support braces to support the deck frame elements at their intersections. As I explained above, as the longitudinal and transverse deck frame elements get longer, the stresses and deflections in the elements increase. The largest deflection and stress occurs at the midpoint of the elements. Therefore, the best place to locate the support legs are at the intersection of the longitudinal and transverse deck frame elements where the support leg can be used to effectively mitigate stress in both the longitudinal and transverse deck frame element and at the midpoint between these intersections where the peak stresses can be most effectively reduced. As such, these additional features would have been obvious over Guo, Publicover, and Grelle.

⁶⁸ Ex. 1008 (Grelle), 4:11-20 ("Each box frame is supported from the ground near its corners and at intervals along the length of its members as required to give sufficient rigidity to the box frame and the platform by braces.").

XI. Ground 4: Guo in view of Nissen renders obvious claims 16-17

A. Claim 16

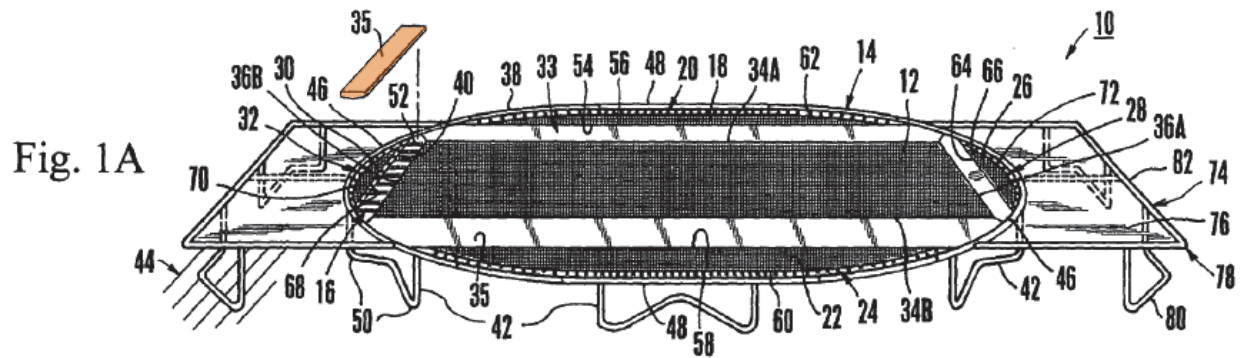
The arena of claim 1, wherein the plurality of pads include a plurality of side base pads positioned along a transition between the outer wall and the deck, the side base pads having a wedge-shaped profile.

128. As explained above, Guo anticipates or renders obvious claim 1. See ¶¶ 66-85. The additional features of claim 16 are disclosed by Nissen (Ex. 1007) and it would have been obvious to a POSITA to combine Guo and Nissen for the reasons discussed below.

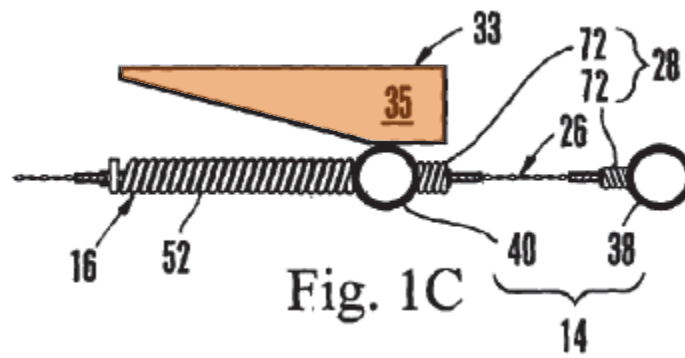
129. As discussed above, Guo disclosed using padding to cover the joints of the trampolines.⁶⁹ See ¶¶ 44, 80. Nissen also disclosed using padding at the outer edges of the trampoline deck to cover the joints between the trampoline and the frame, where the trampoline connects to the frame. “The pad assembly 33 helps to protect the user from injury. In this embodiment, the pad assembly 33 includes one or more pads 35 (one of the pads 35 is shown in an exploded view for clarity) that substantially cover at least a portion of the bed suspension assembly 16 and/or a portion of one or more of the side suspensions 20, 24 and/or the end suspensions.”⁷⁰ I have highlighted padding 35 in orange in Nissen’s figures below:

⁶⁹ Ex. 1004 (Guo), 7:[0025].

⁷⁰ Ex. 1007 (Nissen), ¶ [0041] (“The pad assembly 33 helps to protect the user from injury. In this embodiment, the pad assembly 33 includes one or more pads



Ex. 1007 (Nissen), Fig. 1A (annotated)



Ex. 1007 (Nissen), Fig. 1C (annotated)

130. Nissen's padding is wedge-shaped. In a preferred embodiment, Nissen explains that "pad assembly 33 includes a pad 35 having a somewhat trapezoidal cross-sectional shape, although this shape can vary."⁷¹ As shown in Figure 1C above, the padding is wedge-shaped. Although Nissen describes this

35 (one of the pads 35 is shown in an exploded view for clarity) that substantially cover at least a portion of the bed suspension assembly 16 and/or a portion of one or more of the side suspensions 20, 24 and/or the end suspensions."

⁷¹ Ex. 1007 (Nissen), ¶¶ [0045]-[0046]; *see also id.* ¶¶ [0041], [0053]-[0054], Figs. 1A, 1B, 1C, and 2.

shape as “trapezoidal,” the lefthand side of the padding is triangular, and therefore wedge-shaped; in other words, the padding gradually increases from a smaller cross-sectional height on the left to a larger cross-sectional height as it extends to the right. Hence, Nissen’s pad is wedge-shaped.

131. It would have been obvious to a POSITA to use wedge-shaped padding disclosed in Nissin at the edges of Guo’s deck frame (*i.e.*, at the transition between the horizontal deck and the angled sidewalls) in order to provide safety to the user at the frame members that are located at the transition between the horizontal deck and the angled side walls.⁷² Not only does the wedge shape “accommodate the up and down movement of the bed suspension assembly 16 during use of the trampoline 10”⁷³, a POSITA would have recognized that using wedge shaped padding with Guo’s trampoline arena would increase safety because it would reduce the sharpness of the angle at the transition between the horizontal deck to the vertical sidewalls.

132. In addition, a POSITA would have recognized that using wedge-shaped padding would have been an obvious use of known elements (padding) in an expected way (to cover dangerous elements) to achieve the expected results of

⁷² Ex. 1004 (Guo), 7:[0025]; Ex. 1007 (Nissen), ¶¶ [0041], [0045]-[0046], [0053]-[0054].

⁷³ Ex. 1007 (Nissen), ¶ [0046].

additional safety and comfort for the user of the trampoline, to lower their risk of injury when jumping near the sidewalls, and to ensure durability of the joints.

Using wedge-shaped padding to cover sharp transitions would have been an obvious design choice from among well-known ways of protecting hazardous elements (*e.g.*, coatings, covers, cages, etc.) with known trade-offs (*e.g.*, costs, ease of construction/deconstruction, stability, durability, etc.) as padding that follows the shape of the underlying frame is routinely used to cover frames and joints, especially in active sports applications including trampolines.

133. Using a wedge shape for the padding was obvious design choice to try because there would have been a finite number shapes for padding along an angled intersection, and any of these shapes would have had a reasonable expectation of success. As such, these additional features would have been obvious over Guo and Nissen.

B. Claim 17

The arena of claim 16, wherein the plurality of pads include triangular base pads covering the lower corner members.

134. As explained above, Guo in combination with Nissen renders obvious claim 16. See ¶¶ 128-133. For the same reasons stated for claim 16, claim 17 is also obvious because Nissen's wedge-shaped pads are also triangular, and the pads would have covered the lower corners of the deck frame because of the rigid

elements located at the corners of the trampoline. Thus, Guo in combination with Nissen also renders this claim obvious.

XII. Ground 5: Widich renders obvious claims 1-10 and 19.

A. Claim 1

A trampoline arena comprising:

135. Widich discloses a “trampboarding” trampoline arena with a “frame adapted to define plural planar fields intersecting at obtuse angles, a flexible material mounted therein and supported and located thereat to retain definition of the obtuse angles as defined by the frame at the flexible material when mounted at the frame and during use of the apparatus.”⁷⁴ Widich’s arena “is constructed so that the resilient surface provides plural surface engagement angles across the surface.”⁷⁵ Therefore, Widich discloses the “trampoline arena” of claim 1.

***a plurality of side frames defining an outwardly sloping outer wall, each of the plurality of side frames including:
a rigid first upright member having a top first upright member portion and a bottom first upright member portion mountable to a floor
a rigid angled member connected at an upper angled member portion to the top first upright member portion and extending at a downward angle therefrom to a lower angled member portion, a plurality of voids being defined between the plurality of angled members***

⁷⁴ Ex. 1005 (Widich), Abstract; see also *id.* Figs. 1 and 7-8, ¶¶ [0004]-[0005], [0016]-[0018].

⁷⁵ Ex. 1005 (Widich), ¶ [0005]

136. Widich discloses a plurality of rigid side frame frames that define and stably maintain the shape of the trampoline's horizontal frame and angled side walls.⁷⁶ For example, Widich discloses “a frame having first and second spaced support members that define at least first and second planar fields intersecting at an obtuse angle as defined by the support members.”⁷⁷ “The angle defining support includes a relatively rigid portion maintained adjacent to the bottom surface of the flexible material.”⁷⁸ The frame is “preferably made from welded steel or aluminum alloy tubes of sufficient thickness and diameter to accommodate significant loads.”⁷⁹

137. With reference to Figure 1 of Widich (annotated above as my Figure 15), “the trampoline arena includes frame 23 formed from spaced side support members 25 and 27, end support members 29 and 31, and elevating members 33, 35, 37 and 39” that disclose the side frames of claim 1, each having a “rigid first upright member” (highlighted in blue), a “rigid angled member” (highlighted in

⁷⁶ Ex. 1005 (Widich), ¶ [0006], [0008]

⁷⁷ Ex. 1005 (Widich), ¶ [0006]

⁷⁸ Ex. 1005 (Widich), ¶ [0008].

⁷⁹ Ex. 1005 (Widich), ¶ [0034].

red), and a “horizontally-extending deck” (horizontal orange arrow) framed by deck framing (highlighted in yellow).

138. Although frame 23 is shown in the figure as a continuous structure with bends, Widich discloses that the “various members of frame 23 may be a continuous structure and/or multiple welded or bolted units.”⁸⁰ As a POSITA would have understood, Widich’s frame would be constructed from any number of separate frame members, joined together by welding, bolting, brackets, etc. to form a continuous structure. To a POSITA, the simplest type of frame structure to construct would one be one where each frame element is a straight element and they are joined at locations where the frame angles-off, bends, or deviates from linear. For example, Widich uses the term “bend” interchangeably with “joint” when discussing portions of the frame.⁸¹ Using individual members that are joined together at the bends is a simpler type of construction because it involves cutting straight, uniform frame members to a particular lengths and joining them at the desired angles; by using such construction, no specially-shaped angled members

⁸⁰ Ex. 1005 (Widich), ¶ [0034].

⁸¹ Ex. 1005 (Widich), ¶ [0035] (“Side support members 25 and 27 are characterized by obtuse angled joints (or bends)”).

are required. Accordingly, Widich discloses a frame structure formed from multiple frame members that are joined together in an appropriate fashion.

139. Widich discloses that the frame is mountable to the floor at the bottom portion of the vertical members because they serve as an interface to the floor that elevates the frame at the correct upward angle.⁸² Though not required by the claims, if “mountable to the floor” were to require a particular structure, any such would have been obvious to a POSITA in view of Widich’s teaching that upright supports (such as uprights 129 of auxiliary framework 105; Widich Fig. 8) are “preferably provided with pivotably attached stabilizing feet 137.”⁸³ Thus, adding a mountable structure, such as stabilizing feet, to the bottom of the vertical members would have been obvious. In addition, a POSITA would have been motivated to add stabilizing feet in order to provide stability for the floor-frame interface.⁸⁴

140. Widich’s frame also forms a plurality of voids between the angled members. As shown in Figure 1, the angled frame members are spaced apart to form voids (*i.e.*, areas where there are no frame members, shown by yellow arrows

⁸² Ex. 1005 (Widich), ¶ [0037].

⁸³ Ex. 1005 (Widich), ¶ [0044], Fig. 8.

⁸⁴ Ex. 1005 (Widich), ¶ [0044].

in my Figure 15 above) in which trampoline material is installed using springs.⁸⁵

See ¶ 61.

a horizontally-extending deck connected to the lower angled member portions of the plurality of side frames

141. As explained above, Widich discloses a “horizontally-extending deck” (horizontal orange arrow) framed by deck framing (highlighted in yellow) that is connected to the angled member portions (highlighted in red) of the plurality of side frames, as I have annotated above as my Figure 15. See ¶ 137.

142. Widich’s deck is horizontal, because as Widich explains, “first planar field [41] tends to the horizontal when the frame is positioned for use.”⁸⁶

a plurality of trampolines connected to the angled members along peripheries thereof and extending across the plurality of voids

143. Widich discloses this limitation. As I show above, for example, in the annotated version of Widich Figure 1 (my Figure 15) and in the annotated version of Figure 7 (my Figure 16), the voids formed between side frames are covered by

⁸⁵ Ex. 1005 (Widich), ¶ [0038] (“Multiple resilient supports 55 (see FIG. 1, wherein only some of which are numbered) are connected between frame support members 25, 27, 29 and 31 and flexible material 53 utilizing known connection techniques”).

⁸⁶ Ex. 1005 (Widich), ¶ [0006], ¶ [0016], ¶ [0038] (“The frame is preferably constructed so that planar field 41 tends to the horizontal when the frame is set up for use.”)

trampolines (highlighted by orange arrows) extending across the voids and along the peripheries of the angled members. See ¶¶ 61, 63, 64.

a padding assembly including a plurality of pads at least partially overlying the angled members and the peripheries of the trampolines

144. Widich discloses this limitation. “While not shown, safety padding may be deployed over selected exposed frame members as would be deemed prudent.”⁸⁷ As the exposed frame members would include the angled members and the resilient supports (*i.e.*, springs) connecting the peripheries of the trampolines to the frame, Widich discloses this limitation.

B. Claim 2

The trampoline arena of claim 1, wherein each of the plurality of side frames further includes a rigid cross member extending between the first rigid upright member to the lower angled member portion.

145. Widich also discloses using a rigid cross member to define and stably maintain the shape of the trampoline’s horizontal frame and angled side walls. As I annotated above in Widich Figure 1 (my Figure 15) and in the annotated version of Figure 8 (my Figure 17), Widich’s rigid cross members are highlighted in purple. See ¶¶ 61, 65.

⁸⁷ Ex. 1005 (Widich), ¶ [0037].

146. Although Figure 1 of Widich does not explicitly show the rigid cross member being attached to the angled frame member (highlighted in red), Widich discloses that the side frames can be constructed to allow for an adjustable angle for the sidewall.⁸⁸ In this adjustable configuration, the rigid cross member (highlighted purple) would be attached to the angled frame member (highlighted red) and the upright member (highlighted in blue) as shown above in Widich Figure 8 (my Figure 17 above). See ¶ 65.

147. Widich's calls the cross members of Figure 8 "retaining bars," used for stabilizing and setting the adjustable angle of the wall.⁸⁹

148. In addition, to the extent not explicit or inherent in the above disclosures, using a cross bar for connecting the lower angled member to the vertical upright member would have been obvious in order to provide additional stability and adjustability to the frame. A POSITA would have been motivated to

⁸⁸ Ex. 1005 (Widich), ¶ [0036] ("Moreover, while fixed frame members are illustrated herein, frame 23 could be made so that the obtuse angle or angles established thereby are adjustable (for example, by locating securable pivots at locations 40 of members 25 and 27 together with a securable telescoping feature and related adaptations at elevating members 33, 35, 37 and 39).").

⁸⁹ Ex. 1005 (Widich), ¶ [0044] ("In that case, support arm assemblies 123 are provided with pivoting connections 127 between support arm upright 129 and retaining bar 131 and framework 105 (utilizing, for example, a tab and pin construction), with multiple angle selection tabs 133 welded at upright 129 for selected pinned retention of end 135 of retaining bar 131.").

add a cross bar in order to construct trampboarding arenas that are “sturdily constructed, and are readily adjustable or manipulable over a variety of parameters.”⁹⁰ A POSITA would have also been motivated to use the retaining bar, *e.g.*, shown in Fig. 8, to provide an adjustable angled side wall of Figure 1.

C. Claim 3

The trampoline arena of claim 2, where each of the plurality of side frames further includes a rigid second upright member having a top second upright member portion connected to the lower angled member portion and a bottom second upright member portion mountable to a floor.

149. Widich discloses a rigid second upright member. Widich’s second rigid upright members are shown highlighted in green in my annotated version of Widich Figure 1 (my Figure 15). The top of the vertical posts, or “short supports,” as Widich calls them, connect to the bottom of the upper angled member at join 40.⁹¹ See ¶ 61.

150. In addition, Widich discloses that the short supports are mountable to the floor at their bottom portion because they serve as an interface to the floor that elevates the deck frame.⁹² To the extent Patent Owner argues that a particularly-

⁹⁰ Ex. 1005 (Widich), ¶¶ [0005], [0036], [0044].

⁹¹ Ex. 1005 (Widich), ¶ [0037] (“Elevating members (or assemblies) . . . each include a long support 44, *short support* 45 . . .”), [0035].

⁹² Ex. 1005 (Widich), ¶ [0037].

shaped structure is necessary to make a frame “mountable to the floor,” though not required by the claims, Widich renders any such structure obvious as I explained above with respect to the first upright members. See ¶ 139; see also ¶¶ 73-75.

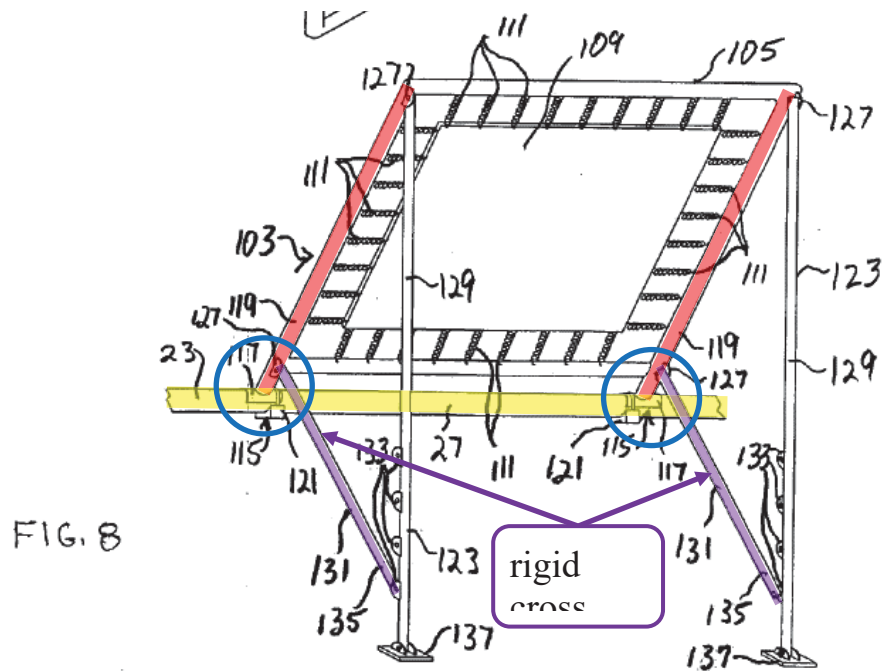
D. Claim 4

The trampoline arena of claim 3, wherein the rigid cross member includes a first cross member end connected between the top and bottom first upright member portions and a second cross member end connected at a junction of the lower angled member portion and the top second upright member portion.

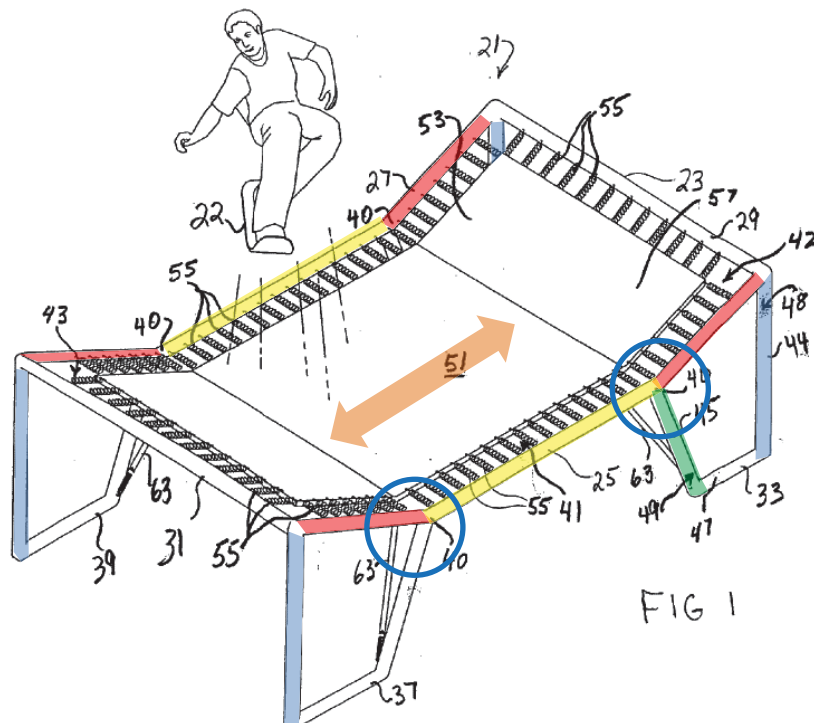
151. As explained above with respect to claim 3, it would have been obvious in view of Widich’s teaching to replace the fixed sidewall frame structures shown in Figure 1 with an adjustable configuration using the cross bar member disclosed in Figure 8 in order to provide adjustable angled side walls. See ¶¶ 146-148 above. With this alternative configuration, as shown below in Figure 8, the end of the cross bar is connected at the horizontal deck frame member (27 in Figure 8),⁹³ which is the joint where the vertical supports connect in order to elevate the horizontal deck above the floor.⁹⁴ I have circled the junctions in blue below:

⁹³ Ex. 1005 (Widich), ¶ [0044].

⁹⁴ Ex. 1005 (Widich), ¶ [0037].



Ex. 1005 (Widich), Fig. 8 (annotated); see also *id.* Fig. 1, ¶¶ [0037], [0044].

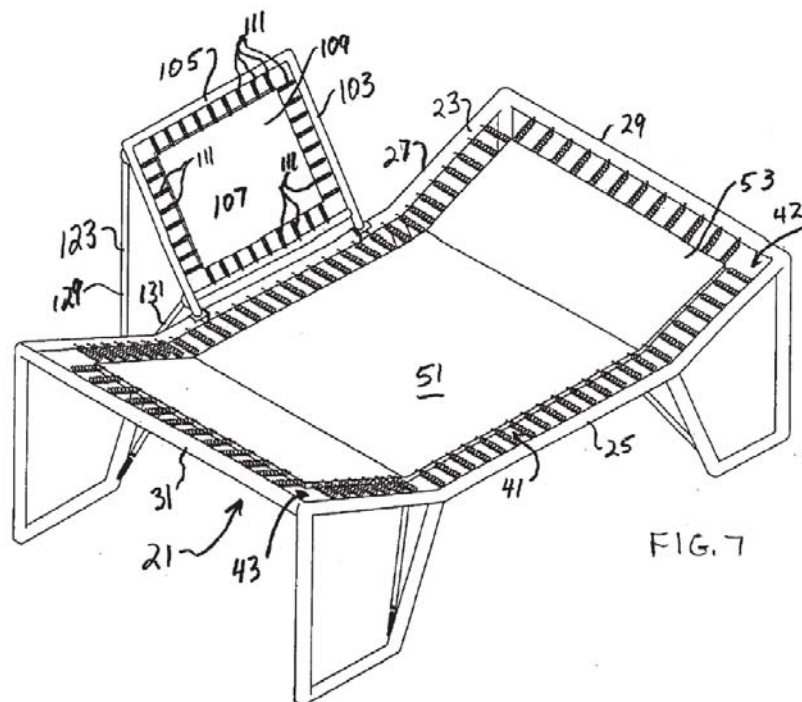


Ex. 1005 (Widich), Fig. 1 (annotated); see also *id.*, Fig. 8, ¶¶ [0037], [0044].

E. Claim 5

The arena of claim 1, wherein the outer wall substantially surrounds the deck.

152. Widich also discloses an outer wall that substantially surrounds the deck. As shown, for example, in Figure 7, angled rebounding surfaces are present on at least three sides of the four-sided horizontal deck, and therefore substantially surround the deck.



Ex. 1005 (Widich), Fig. 7.

153. Even if Widich does not sufficiently surround the deck to be “substantial,” it would have been obvious to more substantially surround the horizontal deck. A POSITA would have been motivated by Widich’s teaching to add additional side walls in order to provide additional areas of resilient boarding

surfaces.⁹⁵ A POSITA would have recognized from Widich's disclosure that it would have been desirable to further surround the deck with additional, resilient surfaces in order to provide more surfaces for the various skills, tricks, and safety concerns for the trampboarding arena.

F. Claim 6

The arena of claim 1, wherein at least one of the plurality of voids is not covered such that an access opening for the trampoline arena is formed.

154. Widich also discloses the additional features of claim 6. As explained above with respect to claim 5, Widich discloses an outer wall with angled rebounding surfaces that are present on at least three sides of the four-sided horizontal deck, and the fourth side is left open for accessing the trampoline arena.⁹⁶ See ¶¶ 152-153. In addition, Widich discloses that the arena “may also include boarder mounting platform 147 having stairs 149 and provided with safety railings 151” as shown, for example, in Figure 9.

⁹⁵ Ex. 1005 (Widich), ¶ [0045] (“While a separable unit is shown with respect to structure 103, it should be appreciated that the structure of frame 23 of apparatus 21 could be conceived to accommodate additional ancillary angled resilient boarding surfaces adjacent to side supports 25/27 of the frame.”); *see also id.* ¶¶ [0046]-[0047].

⁹⁶ Ex. 1005 (Widich), Fig. 7.

G. Claim 7

The arena of claim 1, further comprising: at least one upper frame member interconnecting the plurality of side frames.

155. Widich also discloses using at least one upper frame member (e.g., “end support members 29 and 31”) to interconnect side frames.⁹⁷ Widich’s upper frame member is highlighted in orange in my annotated version of Widich Figure 1 (my Figure 15 above). See ¶ 61.

H. Claim 8

The arena of claim 7, wherein each of the plurality of side frames further includes an upper bracket connected to the top first upright member portion and receiving the at least one upper frame member.

156. Widich also discloses using a bracket to connect the upright member and receive the upper frame member. This is because Widich discloses that the frame can be constructed from a continuous member that uses bends or by separate pieces that are joined together.⁹⁸ In addition, Widich discloses other types of configurations to connect joints, including using “securable pivots” to achieve the same purpose.⁹⁹ Thus, Widich discloses brackets in the form of welds, bolts, and

⁹⁷ Ex. 1005 (Widich), ¶ [0034].

⁹⁸ Ex. 1005 (Widich), ¶ [0034] (“The various members of frame 23 may be a continuous structure and/or multiple welded or bolted units.”).

⁹⁹ Ex. 1005 (Widich), ¶¶ [0035]-[0036], Fig. 8.

securable pivots used to connect the top upright member to and receive the upper frame member.

157. To the extent not explicitly or inherently disclosed by Widich, a bracket would have been a well-known and obvious way of connecting frame members. See my discussion at ¶¶ 38-40 above. A POSITA would have been motivated to use brackets in order to form a secure connection at the joints of frame members.¹⁰⁰ Brackets were a well-known method of joining frame members, and a POSITA would have recognized that brackets were a well-known design choice from a limited number of ways to connect frame members. See ¶¶ 38-40.

I. Claim 9

The arena of claim 7, wherein the at least one upper frame member includes a plurality of upper frame members.

158. For the reasons I discussed above, Widich discloses forming the upper frame member out of a plurality of upper frame members. As shown in my Figure 15, Widich discloses using two upper frame members (highlighted in orange). See ¶ 61, see also ¶ 155. In addition, Widich discloses that the “various members of

¹⁰⁰ Ex. 1005 (Widich), ¶¶ [0034]-[0036].

frame 23 may be a continuous structure and/or multiple welded or bolted units.”¹⁰¹

Accordingly, Widich discloses this additional limitation.

J. Claim 10

The arena of claim 1, wherein each of the plurality of side frames further includes a lower bracket connected to the lower angled member portion and attaching the deck thereto.

159. Widich discloses using a bracket to connect the angled member to the deck. This is because Widich discloses that the frame can be constructed from a continuous member that uses bends or by separate pieces that are joined together.¹⁰² In addition, Widich discloses other types of configurations to connect joints, including using “securable pivots” to achieve the same purpose.¹⁰³ Thus, Widich discloses connecting the angled member to the deck with brackets.

160. To the extent this feature is not explicitly or inherently disclosed by Widich, it would have been obvious to use a bracket to connect frame members. A POSITA would have been motivated to use brackets in order to form a secure

¹⁰¹ Ex. 1005 (Widich), ¶ [0034].

¹⁰² Ex. 1005 (Widich), ¶ [0034] (“The various members of frame 23 may be a continuous structure and/or multiple welded or bolted units.”).

¹⁰³ Ex. 1005 (Widich), ¶ [0035]-[0036] (“While providing bends 40 at members 25 and 27 is illustrated herein to establish the intersecting fields established by frame 23, other constructions could be conceived of to achieve the same purpose.”); see also Fig. 8.

connection at the joints of frame members.¹⁰⁴ Brackets were a well-known method of joining frame members, and a POSITA would have recognized that brackets were a well-known design choice from a limited number of ways to connect frame members. See ¶¶ 38-40.

K. Claim 19

A trampoline arena comprising:

a plurality of rigid side frames defining a wall, a plurality of voids being defined between the plurality of side frames, each of the plurality of rigid side frames comprising an upper bracket and a deck bracket, the plurality of side frames interconnected at the upper brackets by a plurality of upper frame members;

a plurality of trampolines connected to the side frames along peripheries thereof and extending across the plurality of voids;

a padding assembly including a plurality of pads at least partially overlying the side frames and the peripheries of the trampolines; and

a trampoline covered deck connected to the plurality of side frames at the deck brackets.

161. Claim 19 is essentially the same scope as claim 1, except that it includes additional bracket limitations for connecting the upright members to upper frame members and for connecting the side frames to the deck. I discussed how Widich discloses or renders obvious all of these features as I discussed above with respect to claim 1 (basic structure), claim 7 (upper frame), claim 8 (upper bracket), and 10 (deck bracket). For those same reasons, Widich anticipates or renders obvious claim 19.

¹⁰⁴ Ex. 1005 (Widich), ¶¶ [0034]-[0036].

XIII. Ground 6: Widich in view of Grelle renders obvious claims 11-15.

A. Claim 11

The arena of claim 10, wherein the deck comprises:

a plurality of intersecting longitudinal and transverse deck frame elements, a plurality of deck voids being defined between the plurality of intersecting longitudinal and transverse deck frame elements; and

a plurality of deck trampolines connected to the plurality of intersecting longitudinal and transverse deck frame elements along peripheries thereof and extending across the plurality of deck voids.

162. Grelle discloses a plurality of intersecting longitudinal and transverse deck frame elements, a plurality of deck voids being defined between the plurality of intersecting longitudinal and transverse deck frame elements, as shown in Figures 1 and 2 of Grelle, I discussed above with my Figure 23 showing Grelle's "box frames." See ¶¶ 113-115.

163. With respect to combining Widich with Grelle, it would have been obvious for a POSITA to add the frame elements of Grelle to Widich's trampboarding arena in order to add additional bouncing surfaces and build a larger area for the trampoline arena with suitably sized and shaped resilient surfaces.¹⁰⁵ Widich suggests using ancillary structures to provide "suitably sized and shaped ancillary resilient boarding surface," suggests using "additional ancillary structures" that connect to "establish[] an assemblage providing a

¹⁰⁵ Ex. 1005 (Widich), ¶¶ [0043], [0045]-[0046].

trampboarding arena”. In addition, Grelle teaches dividing the deck up into “multiple-unit trampoline centers” that would serve Widich’s goal of -providing additional ancillary structures.¹⁰⁶ Accordingly, it would have been obvious to use Grelle’s deck as the horizontal deck of Widich.

B. Claim 12

The arena of claim 11, wherein the plurality of intersecting longitudinal and transverse deck frame elements are rigid elements.

164. The additional features of claim 12 are disclosed by Grelle. As I discussed above, Grelle discloses a horizontal deck formed from a plurality of “box frames” with longitudinal and transverse deck frame elements. See ¶¶ 113-115. Grelle further discloses that these elements, *i.e.*, each “box frame”, “may be made of metal or a rigid plastic.”¹⁰⁷ Thus, Grelle discloses rigid deck elements.

C. Claim 13

The arena of claim 11, wherein the padding assembly at least partially overlays plurality of intersecting longitudinal and transverse deck frame elements and the peripheries of the deck trampolines.

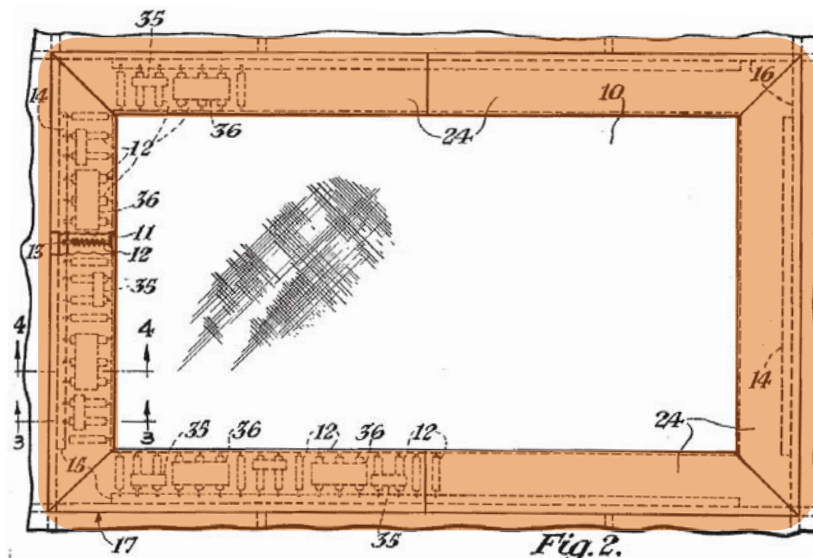
165. The additional features of claim 13 are disclosed by Grelle because Grelle discloses protective padding that covers the edges of each trampoline and

¹⁰⁶ Ex. 1008 (Grelle), 1:9-12.

¹⁰⁷ Ex. 1008 (Grelle), 2:31-40.

the springs that attach each trampoline to the intersecting frame members.¹⁰⁸

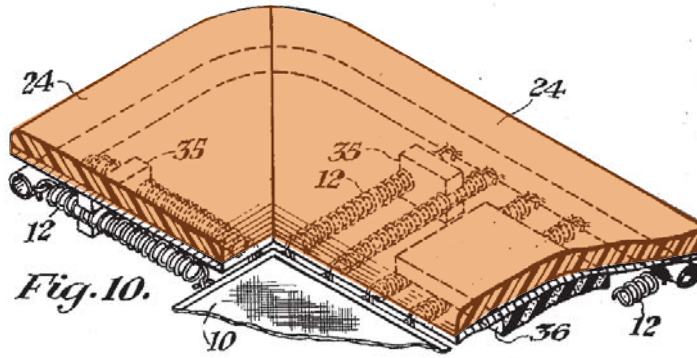
Grelle teaches that the padding “eliminate[s] the hazards of injury to a jumper from striking the trampoline frame or from slipping between the springs.”¹⁰⁹ As shown for example in Grelle’s Figures 2 and 10, to prevent a user’s foot from slipping between the springs, Grelle’s padding (which I have highlighted in orange in the Figures below) covers the trampoline deck’s outer frame (dotted lines) and the peripheries of the trampoline (dotted lines):



Ex. 1008 (Grelle), Fig. 2 (annotated)

¹⁰⁸ Ex. 1008 (Grelle), 1:27-32, 2:63-65, 3:1-31, Figs. 1-2, 10.

¹⁰⁹ Ex. 1008 (Grelle), 1:13-18.



Ex. 1008 (Grelle), Fig. 10 (annotated)

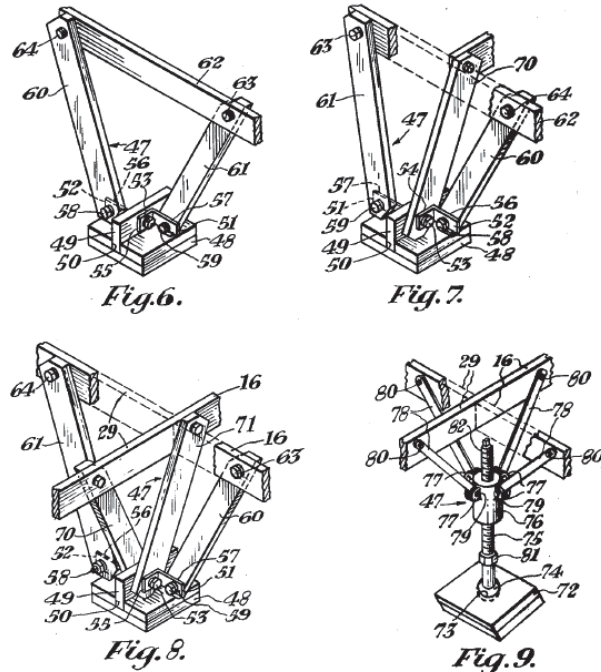
D. Claim 14

The arena of claim 11, further comprising: a plurality of support legs supporting the longitudinal and transverse deck frame elements.

166. The additional features of claim 14 are also disclosed by Grelle.

Grelle discloses that each trampoline's "box frame" (i.e., the longitudinal and transverse deck frame elements) is supported by braces¹¹⁰ as shown below in Grelle's Figures 6-9:

¹¹⁰ Ex. 1008 (Grelle), 4:11-20 ("Each box frame is supported from the ground near its corners and at intervals along the length of its members as required to give sufficient rigidity to the box frame and the platform by braces indicated generally by the numeral 47.")



Ex. 1008 (Grelle), Figures 6-9.

167. Grelle discloses braces (Figure 6), braces for T junctions (Figure 7), and braces for corners (Figure 8) of the trampoline box frames.¹¹¹ Grelle thus discloses a plurality of support legs supporting the longitudinal and transverse deck frame elements. It would have been obvious to combine Grelle's box frames (and therefore the associated support braces thereunder) with Widich for the reasons I explained above under claim 10. See ¶ 163.

E. Claim 15

The arena of claim 14, wherein the plurality of support legs are arranged at least one of intersections of the longitudinal and transverse deck frame elements and midpoints between the intersections of the longitudinal and transverse deck frame elements.

¹¹¹ Ex. 1008 (Grelle), 4:52-70.

168. The additional features of claim 15 are disclosed by Grelle. As was discussed with claim 14 above, Grelle discloses that each trampoline's "box frame" (*i.e.*, the longitudinal and transverse deck frame elements) is supported by braces to provide rigidity to the deck structure. See ¶ 166. Grelle further discloses that the braces are located at the intersections of the deck frame elements. "Braces with four supporting arms may be provided ***at the corners*** of the box frames."¹¹² Grelle also discloses that the braces are located at midpoints along the deck frame elements. "Each box frame is supported from the ground near its corners ***and at intervals along the length of its members*** as required to give sufficient rigidity to the box frame and the platform by braces."¹¹³

169. It would have been obvious to combine Grelle's box frames (and therefore the associated support braces) with Widich for the reasons explained above under claim 10. See ¶ 163.

XIV. Ground 7: Widich in view of Nissen renders obvious claims 16-17

A. Claim 16

The arena of claim 1, wherein the plurality of pads include a plurality of side base pads positioned along a transition between the outer wall and the deck, the side base pads having a wedge-shaped profile.

¹¹² Ex. 1008 (Grelle), 4:64-65 (emphasis added).

¹¹³ Ex. 1008 (Grelle), 4:11-20 (emphasis added)

170. As explained above, Widich anticipates or renders obvious claim 1. The additional features of claim 16 are disclosed by Nissen (Ex. 1007) and it would have been obvious to a POSITA to combine Widich and Nissen for the reasons discussed below.

171. As discussed above, Widich disclosed using padding to cover the joints of the trampolines.¹¹⁴ Nissen also disclosed using wedge-shaped padding at the outer edges of the trampoline deck to cover the joints between the trampoline and the frame, where the trampoline connects to the frame, as I discussed above. See ¶¶ 129-130.

172. It would have been obvious to a POSITA to use the wedge-shaped padding disclosed in Nissen at the edges of Widich's deck frame (*i.e.*, at the transition between the horizontal deck frame and the angled sidewall frame) in order to provide safety to the user at the frame members and where the springs attach the trampoline to the frame, including at the transition between the horizontal deck and the angled side walls.¹¹⁵ Not only does the wedge shape padding "accommodate the up and down movement of the bed suspension

¹¹⁴ Ex. 1005 (Widich), ¶ [0037].

¹¹⁵ Ex. 1005 (Widdich), ¶ [0037]; Ex. 1007 (Nissen), ¶¶ [0041], [0045]-[0046], [0053]-[0054].

assembly 16 during use of the trampoline 10,”¹¹⁶ the wedge shape padding is also consistent with Widich’s goal to provide multiple resilient areas.¹¹⁷

173. In addition, a POSITA would have recognized that using wedge shaped padding with Widich’s trampoline arena would have increased safety because it would reduce the sharpness of the angle at the transition between the horizontal deck to the vertical sidewalls.

174. A POSITA would have also recognized that using wedge-shaped padding would have been an obvious use of known elements (padding) in an expected way (to cover dangerous elements) to achieve expected results (*e.g.*, additional safety and comfort for the user of the trampoline, a lower their risk of injury when jumping near the sidewalls, and to ensure durability of the joints). Using wedge-shaped padding to cover sharp transitions would have been an obvious design choice from among well-known ways of protecting hazardous elements (*e.g.*, coatings, covers, cages, etc.) with known trade-offs (*e.g.*, costs, ease of construction/deconstruction, stability, durably, etc.) as padding that follows the shape of the underlying frame is routinely used to cover frames and joints, especially in active sports applications including trampolines. Using a wedge

¹¹⁶ Ex. 1007 (Nissen), ¶ [0046].

¹¹⁷ Ex. 1005 (Widich), ¶ [0046].

shape for the padding was an obvious design choice to try because there would have been a finite number shapes for padding along an angled intersection, and any of these shapes would have had a reasonable expectation of success at improving safety.

B. Claim 17

The arena of claim 16, wherein the plurality of pads include triangular base pads covering the lower corner members.

175. For the same reasons I stated above with respect to claim 16, claim 17 is also obvious because Nissen's wedge-shaped pads are also triangular, and the pads would have covered the lower corners of the deck frame because springs and frame elements are located there. Thus, Widich in combination with Nissen also renders this claim obvious. See ¶¶ 172-174.

XII. Conclusion

176. It is my opinion, as an expert in the field of trampoline arenas and mechanical systems, that the '575 Patent Claims 1-19 are unpatentable as being anticipated and/or obvious in view of the prior art.

177. Also, I have considered potential objective indicia relating to the '575 Patent claims for the obviousness grounds, but I found that there are no objective indicia that weigh against the obviousness of the claims.

178. In signing this declaration, I understand that the declaration will be filed as evidence in a review proceeding before the Patent Trial and Appeal Board

of the U.S. Patent and Trademark Office. I acknowledge that I may be subject to cross examination in the case and that cross examination will take place within the United States. If cross examination is required of me, I will appear for cross examination within the United States during the time allotted for cross examination.

179. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code.

Respectfully,



Kimberly Cameron, P.E., Ph.D.

Dated: November 14, 2018

APPENDIX A



KIMBERLY K. CAMERON, Ph.D., P.E.
SENIOR MANAGING CONSULTANT

kkcameron@engsys.com

Dr. Kimberly Cameron is a Senior Managing Consultant for ESI in the Mechanics and Materials practice. She specializes in design, failure analysis, and risk assessments of engineering structures and components. She has conducted hundreds of investigations on a wide variety of engineering structures, from miniature biomedical devices to large scale process equipment. She has also taught classes for engineers preparing to take the fundamentals of engineering exam and the professional engineering licensing examination in both Civil Engineering and Mechanical Engineering.

Dr. Cameron has performed design and damage tolerance evaluations on biomedical devices, pipelines, aircraft structures, industrial machinery, power-plant components, solar panels, pressure vessels, and vehicle components. Dr. Cameron also has extensive experience evaluating pipe-soil interactions, mechanical and welded joints, in-line inspection tools, regulatory compliance, and the overall integrity of pipeline systems. The common thread in each of Dr. Cameron's investigations is the application of the fundamentals of metallurgy, materials science, engineering physics, computational mathematics, and engineering mechanics to help understand and solve complex problems.

Dr. Cameron is a registered patent agent, with experience in both the patent application process, as well as intellectual property disputes. In particular, she has experience in biomedical, automotive, electrical, mechanical, and materials science fields and has provided numerous invalidity and infringement reports.

Areas of Specialization

Metallurgy	Stress Analysis	Pipelines
Plastics	Failure Analysis	Consumer Products
Corrosion	Fatigue Analysis	Biomedical Devices
Materials Selection	Fracture Mechanics	Electronic Devices
Mechanical Engineering	Product Design	Intellectual Property Matters
Engineering Mechanics	Reliability	

Education

Ph.D., Mechanical Engineering, minor Materials Science & Engineering, Stanford University, CA, 2004

M.S., Mechanical Engineering, Stanford University, CA, 2000

B.S.E., Mechanical Engineering. Certificates: Engineering Physics, Applied & Computational Mathematics, Materials Science & Engineering, Woodrow Wilson School of Public Policy & International Affairs, Princeton University, NJ, 1999

September 2017



Licensed Professional Engineer (P.E.)

Mechanical Engineer, State of California License No. 33732

Metallurgical Engineer, State of California.....License No. 1969

Professional Affiliations/Honors

American Society of Mechanical Engineers

Member

TMS

Member

Department of Defense

Fellowship

National Science Foundation

Fellowship

Lucent Technologies

Graduate Fellowship

Positions Held

Engineering Systems Inc., Sunnyvale, California

Senior Managing Consultant, Mechanics & Metallurgy, 2011 – Present

Exponent, Menlo Park, California

Senior Engineer, Mechanics & Metallurgy, 2004 – 2011

Publications/Presentations

“Crack Growth and Arrest in Steam Turbine Casings,” EPRI 3002003504, EPRI, Palo Alto, CA, December 2014.

M. H. Anderson, D. Cislo, J. Saavedra, and **K. Cameron**, Why International Inventors Might Want to Consider Filing Their First Patent Application at the United States Patent Office & the Convergence of Patent Harmonization and E-Commerce, 30 Santa Clara High Tech. L.J. 555 (2014).

“Increasing Reliability of Small Punch Fracture Toughness Testing with Acoustic Emission Monitoring,” Proceedings, 3rd International Conference on Small Sample Test Techniques, September 2014. (with D. Purdy and J. Foulds).

“Small Punch Fracture Toughness Evaluation of Combustion Turbine Materials,” EPRI 3002001468, EPRI, Palo Alto, CA, December 2013. (with D. Purdy, J. Foulds and J. Rodgers).

- “Small Punch Testing for Fracture Toughness” by J. Foulds, J. Rodgers, **K. Cameron** and P. Sullivan, EPRI, Palo Alto, CA: 2013. 3002000250.
- “The Effect of Low Sulfur Content on the Weldability of Linepipe Steel” by **K. Cameron** and A.M. Pettinger, Proceedings of the 9th International Pipeline Conference, September 2012.
- “Effectiveness of Hydrostatic Testing for High Strength Pipe Material” by **K.K. Cameron** & A.M. Pettinger, Proceedings, 8th International Pipeline Conference, October 2010.
- “Axial Loads from Soil Movement Challenge Pipeline Integrity” by **K.K. Cameron** & A.M. Pettinger, PipeLine Gas Technology, November 2009.
- “Assessing Pipeline Integrity Using Fracture Mechanics and Currently Available Inspections Tools” by **K.K. Cameron** & A.M. Pettinger, Journal of Pipeline Engineering, October 2009.
- “Assessing Pipeline Integrity Using Fracture Mechanics and Currently Available Inspections Tools” by **K.K. Cameron** & A.M. Pettinger, Proceedings, 2008 Evaluation and Rehabilitation of Pipelines Conference, Clarion Technical Conferences, Scientific Surveys Ltd., Prague, Czech Republic, October 2008.
- “Fatigue Damage in Bulk Metallic Glass I: Simulation” by **K.K. Cameron** & R. Dauskardt, Scripta Materialia 2006; 54(3):349–353.
- “Fundamentals of Engineering in a Flash” by **K.K. Cameron**, PPI, August 2006.
- “Transmission Electron Microscopy Structure and Platinum-like Temperature Coefficient of Resistance in a Ruthenate-Based Thick Film Resistor with Copper Oxide” by **K.K. Cameron**, G. Crosbie, J. Jiang, & X. Pan, J. Appl. Phys. 2000; 88:1124–1128.

Selected Project Experience

Evaluated the design, pipeline integrity management program, in-line inspection tools, and operation and maintenance practices of both liquid and gas pipeline systems under both 49 CFR 195 and 192.

Failure analysis, design, material selection, mechanical testing, finite element analysis, fatigue and fracture evaluation, and development of various medical devices including cardiovascular implants, orthopedic implants, heart valves, stents, catheters, pacemakers, surgical tools, needles, manifolds, syringes, scooters, physical therapy equipment, drug delivery devices, etc. Performed analyses to support FDA submissions.

Performed prior art searches, infringement and validity analyses on products in many industries, including washing machines, fishing reels, wind turbines, ultrasonic flow meters, cribs, beds, electronic devices, electrical connectors, consumer products and electronics, automotive components, seals, pipe fittings and components, utility knives, nitrile gloves, insulin pens, slicers, medical devices, drug delivery devices, and lasers for engraving.

Retained as an expert for the United States Patent and Trademark Office in the evaluation of a patent claim dispute relating to large diameter pipes.

Assisted the Inter-American Development Bank (IDB) with a pipeline integrity study. The investigation integrated geotechnical site investigations, metallurgical investigations, in-line inspection (ILI) data, external pipe inspection data, and fracture mechanics to perform a root cause failure analysis.

Evaluated the welding procedures and determined the effect of welding defects and other construction factors on pipeline integrity. Investigated pipe soil interactions occurring during hydrostatic testing of pipelines and the evaluation of pipeline ruptures and leaks at welded joints.

Assisted with the investigation of the operation and maintenance procedures of a natural gas pipeline that is located in close proximity to a coal mine.

Assisted the Inter-American Development Bank (IADB) with the supervision of the implementation of a pipeline integrity management program for a pipeline operator.

Performed a failure analysis of an insulated steel pipe. The investigations determined that the polyurethane foam of the buried hot water distribution system suffered excessive creep deformation.

Design evaluation and failure analyses of pipe couplings and fittings, including finite element analyses.

Assisted the general contractor of a nuclear power plant where a large pipe of the primary circuit was vibrating excessively, significantly reducing the allowable power production.

Evaluated the design of a hydrogenerator system. Performed a finite element analysis and fatigue analysis of the rotors, thrust bridge, and head cover to assess the design.

Developed a three-dimensional model of the control rod drive mechanism nozzle penetration in a nuclear reactor pressure vessel head. Evaluated welding-induced residual and operational stresses.

Performed numerical simulation and small punch testing to evaluate fracture toughness and tensile behavior of miniature surface samples from a steam turbine rotor bore and from medical device plastics.

Performed fitness for service and design evaluations for welds in various applications, including in fuel storage tanks, process reactor vessels, scaffoldings, semitrailers, and other automotive components.

Performed design and failure analyses of various gas distribution systems made of polyethylene and steel pipe, including the analysis of pipe-soil interactions, failure analysis of various components, evaluation of welding and construction practices, and performance evaluation of compression couplings.

Performed failure analysis and finite element analyses of various water distribution systems including various fire sprinkler systems, water supply systems and couplings, and a ten foot wide water main. Evaluated the design of various rotors, bearings and seals. Assisted in the design of various drug delivery devices.

Evaluated the material selection and performance of various medical devices.

Developed testing protocols, and conducted failure analyses and design reviews for various consumer electronic devices, electromagnetic latches, power cords, and jacket sleeves.

Evaluated the material selection and performance for various components of several consumer electronic devices such as phones, tablets and computers.

Investigated the manufacturing procedures of an electromagnetic latch used in aerospace applications.

Performed stress analysis of various solar panel components and assisted in design changes to meet standardized safety testing. Evaluated the design of a diode on a solar panel for space applications.

Design evaluation and stress analysis of various consumer products, including washing machines, refrigerators, baby chairs, microwave ovens, coffee machines, exercise machines, etc.

Assisted in the design of a syringe used to remove fluid from a wound. Performed structural evaluations of various scaffoldings and other structures.

Performed welding and structural evaluation of various automotive components including semitrailers. Performed a failure analysis and evaluation of integrity management procedures for a system constructed from pre 1970s ERW linepipe steel.

Evaluated pipeline construction practices and performed a failure investigation after a landslide event. Performed a stress analysis to evaluate the effects of tightening torques on a ton container valve.

APPENDIX B



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PROJECT	STATE
<u>2018</u>	
MTI v. Sennco No. IPR2017-02200 United States Patent and Trademark Office	MO Deposition
Michael Lalonde v. Taylor English Duma, LLP No. 0:16-CV-62328-DPG Superior Court of Fulton County, State of Georgia	GA Deposition
Luv n' Care, Ltd. v. Jackel International Limited, Product Marketing Mayborn Ltd., Mayborn Group Limited, Mayborn Anz Pty Ltd., Jackel China Ltd. No. 10-1891. 4 th Judicial District, Louisiana District Court	LA Trial
<u>2017</u>	
Blunt Wrap U.S.A., Inc. v. Grabba-Leaf, LLC No. 0:16-CV-62328-DPG United States District Court, Southern District of Florida	FL Trial
Luv n' Care, Ltd. v. Jackel International Limited, Product Marketing Mayborn Ltd., Mayborn Group Limited, Mayborn Anz Pty Ltd., Jackel China Ltd. No. 10-1891. 4 th Judicial District, Louisiana District Court	LA Trial
<u>2016</u>	
Pure Fishing Inc. v. Globeride, Inc. No. IPR2015-01252 United States Patent and Trademark Office	CA Deposition
<u>2015</u>	
Radiall S.A. and Radiall USA, Inc. v. Glenair, Inc. No. 2:14-CV-00822-ODW (VBK) United States District Court, Central District of California	CA Deposition
Shimano Inc. v. Globeride, Inc. No. IPR2015-00273 United States Patent and Trademark Office	CA Deposition



**Victaulic Company and Victaulic Company of Canada ULC v.
Anvil International, LLC. And Mueller Canada Ltd.**

No. T-1244-13
Federal Court, Canada

Deposition

2014

Sanofi-Aventis U.S. LLC v. Eli Lilly & Co.

No. 1-14-cv-00113
United States District Court for the District of Delaware

DE Deposition