UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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**BESTWAY (USA), INC.**
Petitioner,

v.

**INTEX MARKETING LTD.**
Patent Owner.

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Case No. PGR2024-00036
U.S. Patent No. 11,959,512

# PETITION FOR POST GRANT REVIEW

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**Other Authorities**

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## LIST OF EXHIBITS

| Exhibit No. | Description |
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| EX1001 | U.S. Patent No. 11,959,512, ("the '512 Patent") |
| EX1002 | Declaration of Dr. Kimberly Cameron |
| EX1003 | File History of the '512 Patent |
| EX1004 | U.S. Patent No. 11,692,572, "the '572 Patent" |
| EX1005 | File History of the '572 Patent |
| EX1006 | U.S. Patent Publication No. 2016/0222686 ("Liu") |
| EX1007 | U.S. Patent Publication No. 2009/0205121 ("Cheng") |
| EX1008 | PCT Publication No. WO 2014/100855 ("Hunter") |
| EX1009 | U.S. Patent Publication No. 2002/0042948 ("Lee") |
| EX1010 | Intex's 2005 Above Ground Pool Catalog |
| EX1011 | Intex's 2006 Above Ground Pool Catalog |
| EX1012 | Intex's 2007 Above Ground Pool Catalog |
| EX1013 | Intex's 2008 Above Ground Pool Catalog |
| EX1014 | Intex's 2009 Above Ground Pool Catalog |
| EX1015 | Intex's 2010 Above Ground Pool Catalog |
| EX1016 | Intex's 2011 Above Ground Pool Catalog |
| EX1017 | Intex's 2014 Above Ground Pool Catalog |
| EX1018 | Declaration of Patrizio Fumagalli |
| EX1019 | Online Listings of Intex Pool, Captured by Wayback Machine of Internet Archive |
| EX1020 | (Intentionally Omitted) |

| Exhibit No. | Description |
|---|---|
| EX1021 | 2006 Owner's Manual for Intex Pool |
| EX1022 | 2011 Owner's Manual for Intex Pool |
| EX1023 | June 27, 2015 YouTube Video of Intex Pool available https://www.youtube.com/watch?v=ETAiHLC89fI |
| EX1024 | July 8, 2012 YouTube Video of Intex Pool available at https://www.youtube.com/watch?v=iilGN5cF-YU |
| EX1025 | July 28, 2012 YouTube Video of Intex Pool available at https://www.youtube.com/watch?v=1iBwYtnzYfs&t=258s |
| EX1026 | Cambridge English Dictionary Definition of "width" |
| EX1027 | Transcript of Chat with Intex Representative |
| EX1028 | U.S. Patent No. 3,225,362 ("Barrera") |
| EX1029 | Intex Website https://intexcorp.com/replacement-parts/10573-corner-top-rail-joints-for-small-rectangular-frame-pools/ |
| EX1030 | Intex Website https://intexcorp.com/replacement-parts/corner-joint-with-corner-seal-for-small-rectangular-frame-pool/ |
| EX1031 | Intex Website https://intexcorp.com/replacement-parts/10574-pins-for-small-rectangular-frame-pools/ |
| EX1032 | Receipt of Order of Intex Pool |

## LIST OF CHALLENGED CLAIMS

| Claim Element | Claim Language |
|---|---|
| [1.0] | An above ground pool, comprising: |
| [1.1] | a first frame member including a first opening; |
| [1.2] | a second frame member including a second opening; |
| [1.3] | a vertical frame member; |
| [1.4] | a frame joint comprising: |
| [1.5] | a first joint portion including a first pin configured to engage the first opening thereby coupling the first joint portion to the first frame member; |
| [1.6] | a second joint portion including a second pin configured to engage the second opening thereby coupling the second joint portion to the second frame member; and |
| [1.7] | a vertical joint portion connected to the first and second joint portions and configured to couple to the vertical frame member; and |
| [1.8] | a liner positioned around the first and second frame members; |
| [1.9] | wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second pins. |
| [2.0] | The above ground pool of claim 1, wherein the width of the vertical joint portion accounts for at least 40% of a total width of the frame joint. |
| [3.0] | The above ground pool of claim 2, wherein the width of the vertical joint portion accounts for about 50% of the total width of the frame joint. |
| [4.0] | The above ground pool of claim 1, wherein the first joint portion includes a first coupling assembly including the first pin, a first base, and a first helical spring supported by the first base, |

| Claim Element | Claim Language |
|---|---|
| [4.1] | the first pin being biased outward through a first hole in the first joint portion by the first helical spring to engage the first opening of the first frame member. |
| [5.0] | The above ground pool of claim 4, wherein the second joint portion includes a second coupling assembly including the second pin, a second base, and a second helical spring supported by the second base, |
| [5.1] | the second pin being biased outward through a second hole in the second joint portion by the second helical spring to engage the second opening of the second frame member. |
| [6.0] | The above ground pool of claim 5, wherein the width of the vertical joint portion accounts for about 70% of a width between the first and second pins. |
| [7.0] | The above ground pool of claim 5, wherein a width of the frame joint exceeds a width of a hole defined by the liner to expose the first and second coupling assemblies. |
| [8.0] | The above ground pool of claim 7, wherein a height of the frame joint exceeds a height of the hole in the liner. |
| [9.0] | The above ground pool of claim 1, wherein the vertical joint portion is centered between the first and second joint portions to form a T-shaped frame joint. |
| [10.0] | The above ground pool of claim 1, wherein the first and second joint portions form an obtuse angle. |
| [11.0] | The above ground pool of claim 1, wherein the vertical joint portion is integrally formed with the first and second joint portions as a single piece. |
| [12.0] | The above ground pool of claim 1, wherein the vertical joint portion includes at least one internal vertical reinforcing rib. |

| Claim Element | Claim Language |
|---|---|
| [13.0] | The above ground pool of claim 1, wherein at least one of the first joint portion and the second joint portion includes an internal reinforcing rib. |
| [14.0] | The above ground pool of claim 1, wherein at last one of the first joint portion and the second joint portion includes an internal support member. |
| [15.0] | A method of assembling an above ground pool, the method comprising: |
| [15.1] | coupling a first joint portion of a frame joint to a first frame member with a first pin configured to engage a first opening of the first frame member; |
| [15.2] | coupling a second joint portion of the frame joint to a second frame member with a second pin configured to engage a second opening of the second frame member; |
| [15.3] | coupling a vertical joint portion of the frame joint to a vertical frame member; and |
| [15.4] | positioning a liner around the first and second frame members; |
| [15.5] | wherein a width of the vertical joint portion accounts for a majority of a width between the first and second pins. |
| [16.0] | The method of claim 15, wherein: an external cross-section of the first joint portion matches an internal cross-section of the first frame member; |
| [16.1] | an external cross-section of the second joint portion matches an internal cross-section of the second frame member; and |
| [16.2] | an external cross-section of the vertical joint portion matches an internal cross-section of the vertical frame member. |
| [17.0] | The method of claim 15, wherein the first joint portion, the second joint portion, and the vertical joint portion are constructed of plastic. |
| [18.0] | The method of claim 15, wherein: coupling the first joint portion to the first frame member comprises depressing the first pin into the first joint |

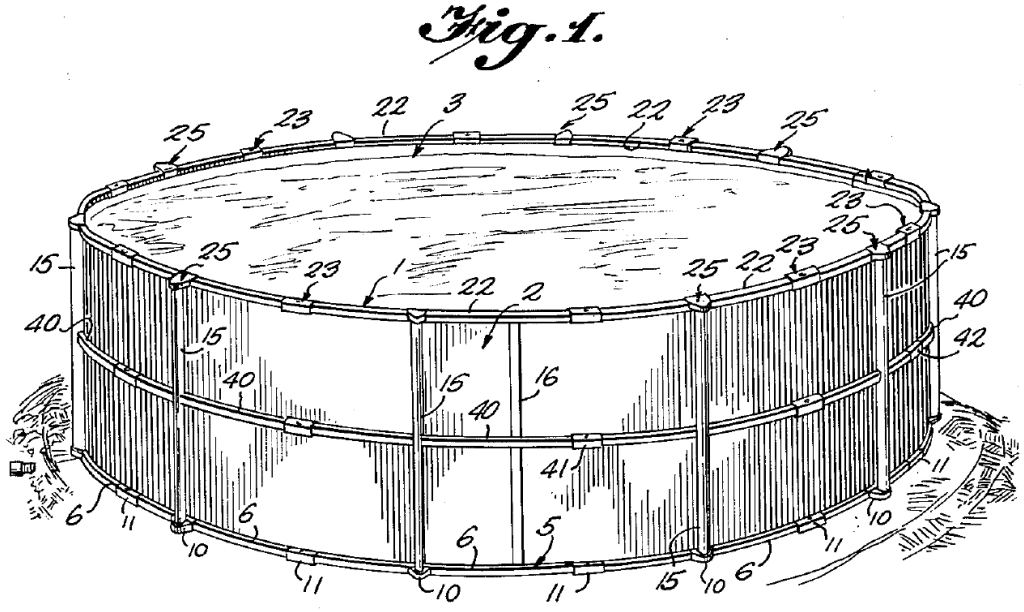
| Claim Element | Claim Language |
|---|---|
| | portion and releasing the first pin into engagement with the first frame member; and |
| [18.1] | coupling the second joint portion to the second frame member comprises depressing the second pin into the second joint portion and releasing the second pin into engagement with the second frame member. |
| [19.0] | The method of claim 15, wherein the vertical joint portion of the frame joint is coupled to the vertical frame member with a coupling assembly and |
| [19.1] | wherein a height of the hole in the liner is less than a distance between the first pin and the coupling assembly. |
| [20.0] | A frame joint for an above ground pool frame having a first frame member, a second frame member, and a vertical frame member, the frame joint comprising: |
| [20.1] | a first joint portion including a first coupling assembly to couple with the first frame member; |
| [20.2] | a second joint portion including a second coupling assembly to couple with the second frame member; and |
| [20.3] | a vertical joint portion connected to the first and second joint portions and configured to couple with the vertical frame member; |
| [20.4] | wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second coupling assemblies; and |
| [20.5] | wherein the first joint portion comprises a first external cross-section which is generally triangular. |
| [21.0] | The frame joint of claim 20, wherein the first external cross-section comprises rounded edges. |

| Claim Element | Claim Language |
|---|---|
| [22.0] | The frame joint of claim 20, wherein the first and second coupling assemblies are actuatable from an exterior of the frame joint along a vertical direction. |
| [23.0] | The frame joint of claim 20, wherein the first and second joint portions cooperate to form an obtuse angle that supports a liner that defines a water cavity. |
| [24.0] | The frame joint of claim 20, wherein the vertical joint portion is integrally formed with the first and second joint portions as a single piece. |

Bestway USA, Inc. ("Petitioner") petitions for Post-Grant Review ("PGR") of Claims 1-24 ("Challenged Claims") of U.S. Patent No. 11,959,512 (EX1001), "the '512 Patent"), assigned to Intex Marketing Ltd. ("Intex" or "Patent Owner").

## I. INTRODUCTION

The Challenged Claims are directed to a "Frame Pool" – a specific type of above ground pool (AGP) with a frame assembly made up of frame members (*e.g.*, pipes) interconnected at frame joints. Frame pools are well known in the recreational industry. EX1002, ¶¶28-30. Frame pools first became popular in the 1960s. Consider, for example, U.S. Patent No. 3,225,362 ("Barrera"), which, as shown below, discloses an AGP having a circular frame formed from frame uprights 15 connected to top rail sections 22 with top snap connectors. Once formed, the frame supports a flexible tank 2 for holding water.




EX1027, Fig. 1

As Barrera noted in 1963, "[t]he use of above ground swimming pools constructed from prefabricated parts purchased in kits is becoming more prevalent. These usually consist of a frame to support an outer wall, in which a plastic, or other flexible, tank is supported." EX1027, 1:14-18.

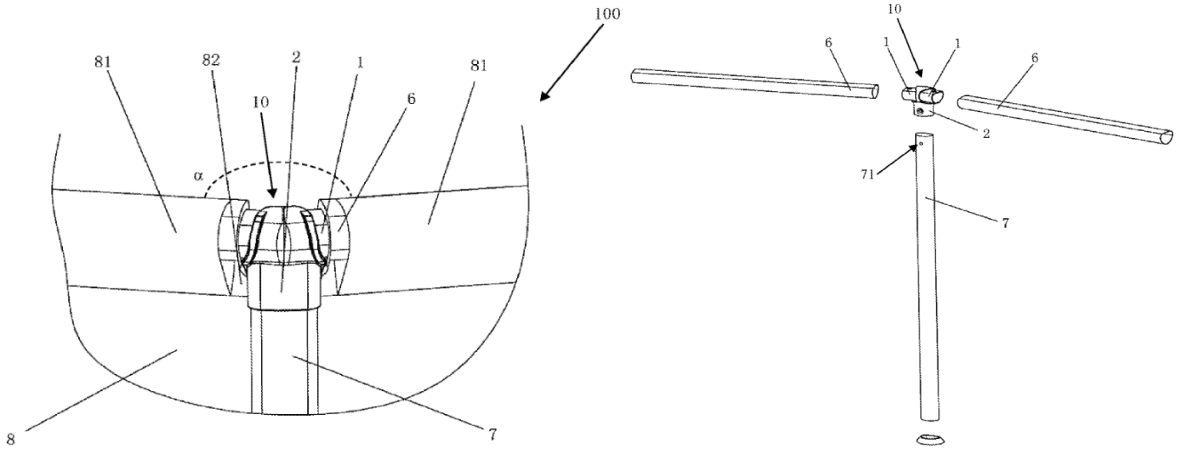
Intex itself has been selling frame pools since at least 2005. EX1010, p.4; EX1002, ¶32. A representative example is shown below.




EX1010, p.4

As shown above, these prior Intex frame pools consisted of horizontal and vertical frame members connected to frame joints. The assembled frame supports a pool liner for holding water. EX1002, ¶33.

The '512 Patent seeks protection on a frame joint for a frame pool. With reference to Figures 1 and 2 below, the Challenged Claims recite a frame joint 10 for connecting horizontal members 6 and vertical members 7 where the frame joint has specific dimensions.




EX1001, Figs. 1-2

However, frame joints having these same dimensions were explicitly disclosed in the prior art – including by Intex itself as part of its prior AGPs – as evidenced herein by product catalogs, product manuals, YouTube videos, archived internet listings, and physical samples. EX1002, 1010-1025. The Challenged Claims are thus invalid in view of primarily Intex's own prior AGPs. (Grounds 3-4.) Alternatively, the Challenged Claims recite nothing more than a simple, obvious variation to *Petitioner's* own published patent application. (Ground 5.)

## II. REQUIREMENTS FOR PGR

### A. Grounds for Standing and PGR Eligibility

The '512 Patent is available for PGR. Petitioner is not barred or estopped from requesting review, has not filed a civil action regarding the '512 Patent, and this Petition is being filed within nine months of the '512 Patent's issuance (April 16, 2024). 37 C.F.R. § 42.201-202.

### B. Challenge and Relief Requested

Petitioner requests institution of PGR and cancellation of Challenged Claims 1-24 in view of the following grounds:

| Ground | Claims | Invalidity Basis |
|---|---|---|
| 1 | 1-24 | Indefinite under 35 U.S.C. §112(b) |
| 2 | 19 | Lack of written description under 35 U.S.C. §112(a) |
| 3 | 1, 9, and 11-15 and 17 | Obvious under 35 U.S.C. §103 in view of the Intex Pool (disclosed in EX1012-1025). |
| 4 | 4-6, 10, 12 and 18 | Obvious under 35 U.S.C. §103 over the Intex Pool in view of Liu (EX1006) |
| 5 | 1, 4-6, and 9-18 | Obvious under 35 U.S.C. §103 over Liu in view of Hunter (EX1008) |

A detailed explanation of why the Challenged Claims are invalid is provided below in Sections VII.–XI., including with reference to the declaration of Dr. Kimberly Cameron (EX1002).

The ’512 Patent was filed on May 16, 2023 and has an earliest claimed priority date of June 17, 2016. It is thus subject to the first-inventor-to-file provisions of the

AIA. EX1001, Foreign Application Priority Data.[1]

The Intex Pool is prior art under 35 U.S.C. §102(a) because it was on sale, in public use, or otherwise available to the public years before June 17, 2016, and at least as early as 2007. Additional discussion of the various supporting documents that collectively establish the Intex Pool as prior art is provided in Section VI(A) below.

Liu (EX1006) was filed on March 27, 2015 (Serial No. 14/671,845) before the earliest effective filing date of the '512 Patent. It therefore qualifies as prior art under 35 U.S.C. §102(a).

Hunter (EX1008) was published as a PCT Publication on July 3, 2014 and claims priority to Australian Patent Application No. 2012905690 filed December 24, 2012. Hunter was both filed and published prior to the earliest effective filing date of the '512 Patent and therefore qualifies as prior art under 35 U.S.C. §102(a).

## III. SUMMARY OF THE '512 PATENT

### A. Description of the '512 Patent

The '512 Patent is directed to a frame assembly for a "frame pool." EX1001, Abstract. The '512 Patent's Background explains that typical frame pools:

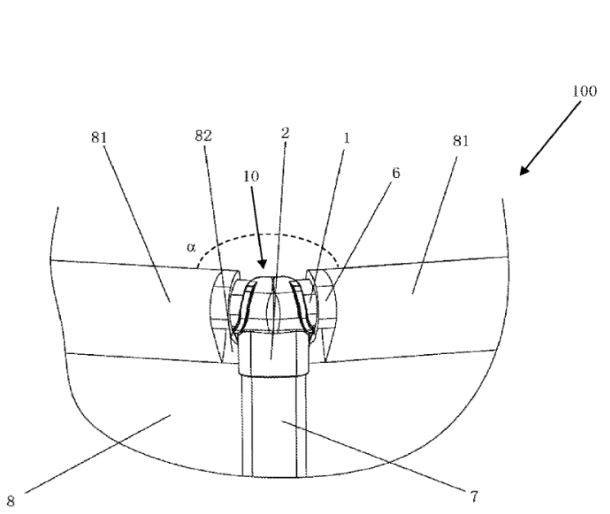
> include one or more horizontal frame members (*e.g.*, horizontal pipes) that form an upper rim of the pool and

[1] Petitioner reserves the right to challenge this priority date based on, for example, the lack of disclosure of at least Elements [1.9], [15.5] and [20.4] in the Foreign Priority Applications.

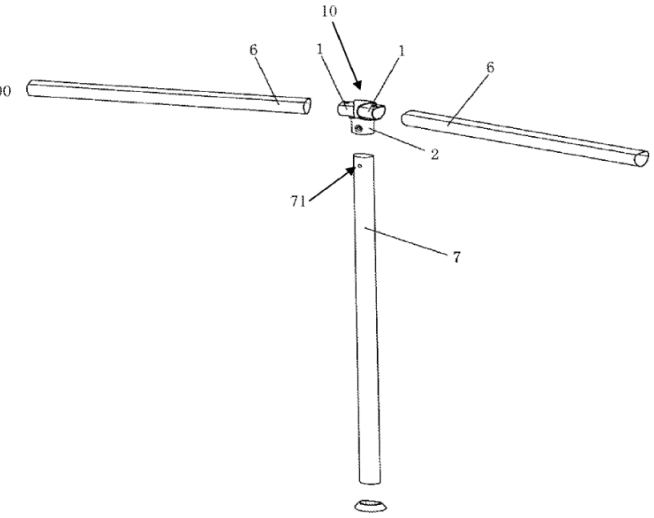
> one or more vertical frame members (*e.g.*, vertical pipes) that extend downward from the horizontal frame members to the ground. To allow the frame assembly to be disassembled for storage and assembled for use, the horizontal frame members and the vertical frame members may be removably coupled together via a plurality of T-shaped joints.

EX1001, 1:33-41. The specification identifies concerns regarding these T-shaped joints: "existing T-shaped joints are relatively wide, so existing pool liners may require wide holes or gaps to accommodate such T-shaped joints, which may impact the pool's appearance and ability to contain water." *Id.*, 1:44-48.

As shown in Figures 1-2, the '512 Patent discloses a frame pool 100 with a T-shaped joint 10. Each T-shaped joint 10 "includes two horizontal joint portions 1 configured to couple to the horizontal frame members 6 and a vertical joint portion 2 configured to couple to the vertical frame member 7." *Id.*, 3:14-17.



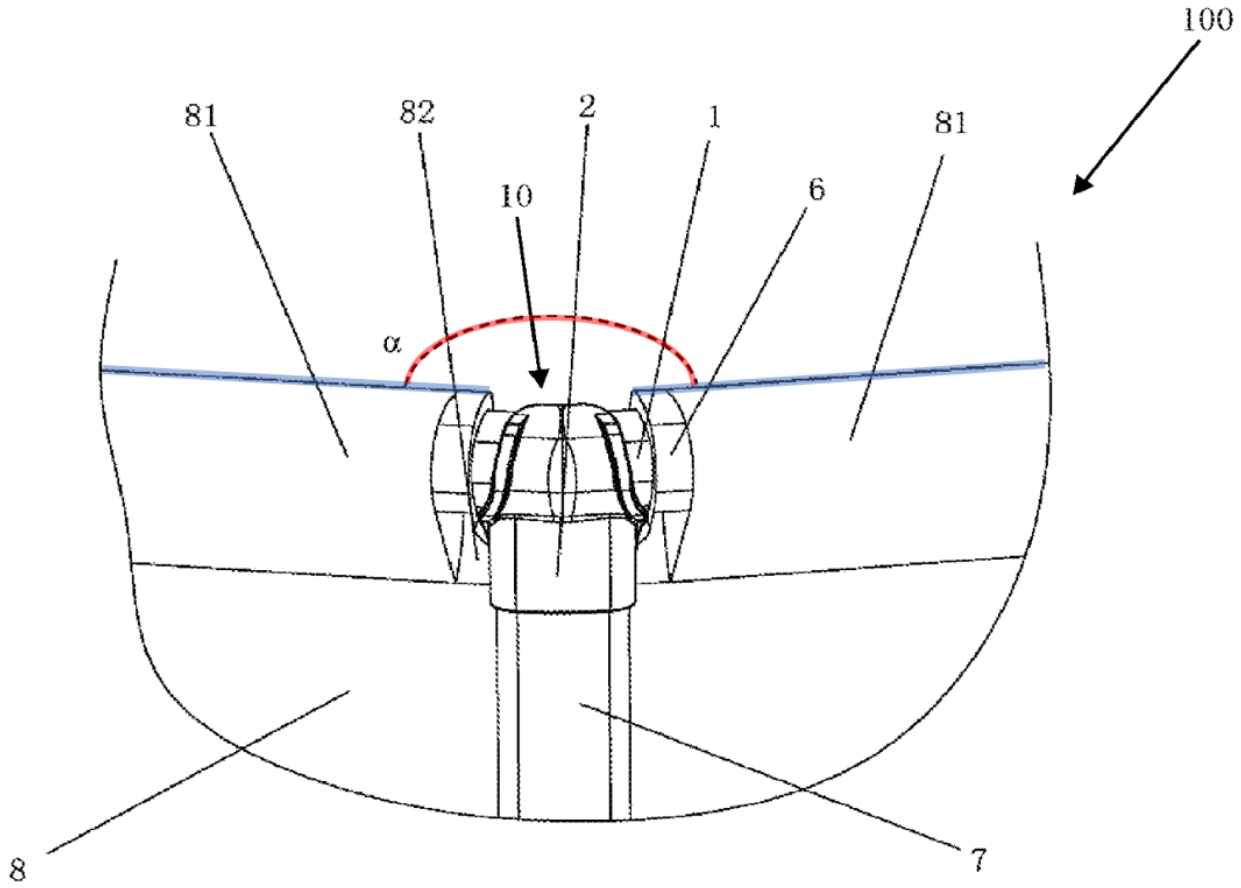

EX1001, Fig. 1




EX1001, Fig. 2

Additional T-shaped joints 10 and frame members 6, 7 are assembled to form a perimeter of a pool. *Id.*, 3:2-4. Upon assembly of the pool frame 100, the horizontal and vertical frame members 6, 7 support a pool liner 8 to form a cavity for holding water. *Id.*, 3:50-52; EX1002, ¶¶42-43.

The angle of the horizontal joint portions can vary with respect to one another so the pool can assume different shapes, such as "rectangular, circular, elliptical, or other suitable shapes." *Id.*, 3:5-7. For example, referring to Figure 1 annotated below, "the horizontal joint portions 1 define an obtuse angle α therebetween [highlighted red], so the horizontal frame members 6 [highlighted blue] define the same angle α therebetween." *Id.*, 3:22-25.

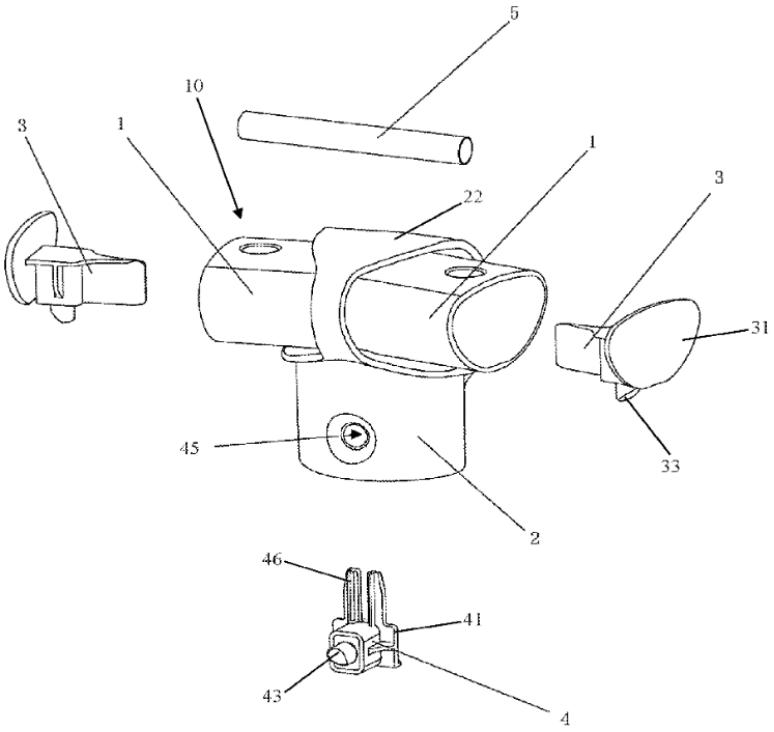



EX1001, Fig. 1 (annotated); EX1002, ¶44

Such a configuration results in a circular pool. EX1002, ¶44. However, in other embodiments, "the horizontal joint portions 1 may be perpendicular to each other, so that the horizontal frame members 6 would also be perpendicular to each other, such as along a corner of a rectangular frame pool 100." EX1001, 3:27-31. In other words, the angle α between the horizontal joint portions 1 can be 90 degrees. EX1002, ¶45.

The horizontal frame members 6 removably attach to the joints 10 through coupling assemblies 3. EX1001, 4:7-9. Each coupling assembly 3 includes a spring-

biased pin 33 "extending radially outward (*e.g.*, downward) through a hole 35 in the horizontal joint portion 1… to engage a corresponding recess or hole (not shown) of the horizontal frame member 6 (Fig. 1)." *Id.*, 4:12-14.




EX1001, Fig. 3

Another spring-biased pin 43 is provided in the vertical joint portion 2 to couple to the vertical frame member 7 (Fig. 2). EX1001, 4:39-56.

Referring to Figure 4 below, the T-shaped joint has a width $W_{J3}$ of the vertical joint portion 2 (yellow) that accounts for at least 50% of the width $W_{J2}$ between the pins 33 (red).

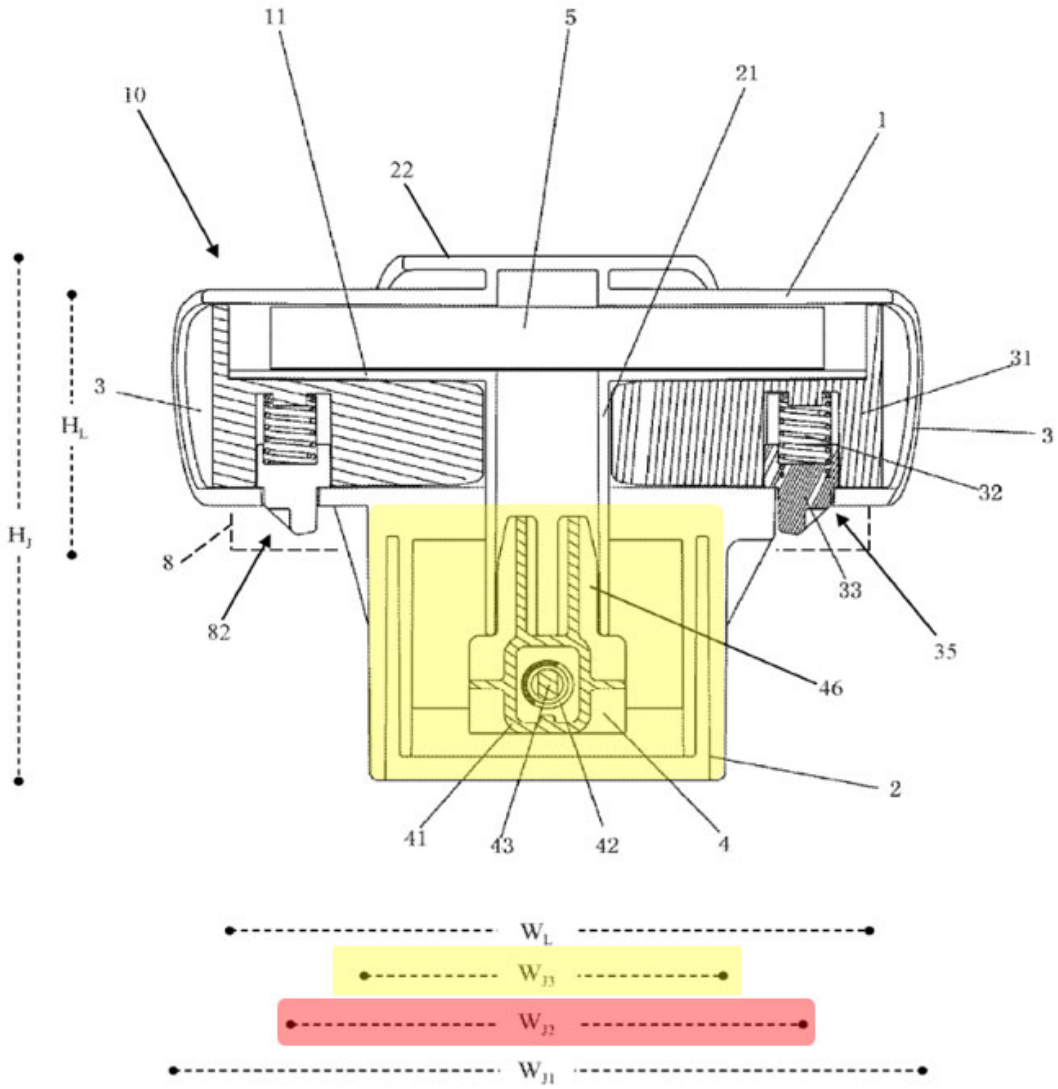



FIG. 4

EX1001, Fig. 4 (annotated); EX1002, ¶49

This claimed relationship simply results in a smaller frame joint and a corresponding smaller pool liner opening than prior AGPs. EX1001, 1:44-48; EX1002, ¶49.

### B. Prosecution History

The prosecution history of the ’512 Patent is terse. An initial Office Action rejected all claims on the ground of non-statutory double patenting in view of claims

1-29 of U.S. Patent No. 11,692,572 ("the '572 Patent"), to which the '512 Patent claims priority. EX1003, pp.543-548. After Applicant filed a Terminal Disclaimer (*id*. at p.595), a Notice of Allowance issued. *Id*. at p.611. Prior art was not used for any rejection during prosecution of the '512 Patent.

However, the prosecution history of the parent '572 Patent included several prior art rejections. In seeking to differentiate that prior art, Applicant made several relevant statements, which are discussed below in Section VII.

## IV. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art is evidenced by the references. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). A person of ordinary skill in the art ("POSA") to which the '512 Patent pertains would have a Bachelor's degree in Mechanical Engineering, or equivalent degree, with at least one year of experience in design evaluation of consumer products or other comparable experience. EX1002, ¶25. Alternatively, a person having 3-5 years of experience in the consumer product industry would quality as a POSA. *Id*.

## V. CLAIM CONSTRUCTION (37 C.F.R. § 42.104(b)(3))

All claim terms should be construed according to the *Phillips* standard and given their "ordinary and customary" meaning (if discernable). *Phillips v. AWH Corp*., 415 F.3d 1303, 1313 (Fed. Cir. 2005); 37 C.F.R. §42.200. Petitioner submits that no formal claim constructions are presently necessary since "claim terms need

only be construed to the extent necessary to resolve the controversy." *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); EX1002, ¶26.

As explained in Ground 1, Claim 1 is indefinite because certain limitations of Element [1.9] (*i.e.*, "a width between the first and second pins" (hereinafter the "Width Limitation")[2] fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. Petitioner also demonstrates in subsequent Grounds that the prior art discloses the Width Limitation under various possible interpretations.

Petitioner reserves the right to respond to any constructions offered by Intex or adopted by the Board in this proceeding.

## VI. SUMMARY OF THE PRIOR ART

### A. The Intex Pool

Intex has been selling frame pools since at least 2005 (as explained above), including *rectangular* frame pools since at least 2007. For example, Intex's 2007 Above Ground Pool Catalog introduces the following rectangular frame pool models, including model number 58980:

[2] The Width Limitation also appears in Claim 6 and Element [15.5].




| FEATURES | NEW! 58983 / E | NEW! 58980 / E | NEW! 58981 / E | NEW! 58982 / E |
|---|---|---|---|---|
| Approximate Set-up Size | 86⅝" x 59" x 23⅝" (2.2m x 1.5m x 0.60m) | 102½" x 63" x 25⅝" (2.6m x 1.6m x 0.65m) | 118" x 78¼" x 29½" (3.0m x 2.0m x 0.75m) | 177¼" x 86⅝" x 33½" (4.5m x 2.2m x 0.85m) |
| Water Capacity (90%) | 439 gal. (1,663 L) | 603 gal. (2,284 L) | 1,013 gal. (3,834 L) | 1,907 gal. (7,217 L) |
| Ready for Water in | 30 Minutes | 30 Minutes | 30 Minutes | 30 Minutes |
| Retail Packaging | Shelf box | Shelf box | Shelf box | Shelf box |
| Case Pack | 1 Ea. | 1 Ea. | 1 Ea. | 1 Ea. |
| Case Weight | 37.6 Lb. (17.1kg) | 42.6 Lb. (19.4kg) | 52.1 Lb. (23.7kg) | 89.7 Lb. (40.8kg) |

NEW!
58980 / E
102½" x 63" x 25⅝"
(2.6m x 1.6m x 0.65m)
603 gal. (2,284 L)
30 Minutes
Shelf box
1 Ea.
42.6 Lb. (19.4kg)

EX1012, p.13 (annotated); EX1002, ¶34

All of these models come in different sizes but many of the same frame components, including the corner joint. Petitioner refers to Intex's model number 58980 sized 102-1/2" x 63" x 25-5/8" as the "Intex Pool" in this Petition. EX1002, ¶35. Intex first sold the Intex Pool at least as early as 2007 and continued to sell the

same pool thereafter. The Intex Pool is thus prior art under 35 U.S.C. §102(a)(1) as demonstrated by the following evidence:

| Exhibits | Description |
|---|---|
| EX1012-1017 | Intex Above Ground Pool Catalogs, years 2007-2011, 2014 |
| EX1019 | Intex's Online Listing of Intex Pool, Captured by Wayback Machine of Internet Archive |
| EX1021 | 2006 Owner's Manual for Intex Pool |
| EX1022 | 2011 Owner's Manual for Intex Pool |
| EX1023[3] | Intex Pool Video (available on YouTube at https://www.youtube.com/watch?v=ETAiHLC89fI) |
| EX1024 | Intex Pool Video (available on YouTube at https://www.youtube.com/watch?v=iilGN5cF-YU) |
| EX1025 | Intex Pool Video (available on YouTube at https://www.youtube.com/watch?v=1iBwYtnzYfs&t=258s) |

Each of these demonstrates that the Intex Pool was on sale or otherwise available to the public more than a year prior to the earliest effective filing date of the '512 Patent.

[3] Bestway has a physical sample of this pool it can submit as a physical exhibit.

*1. Intex Catalogs*

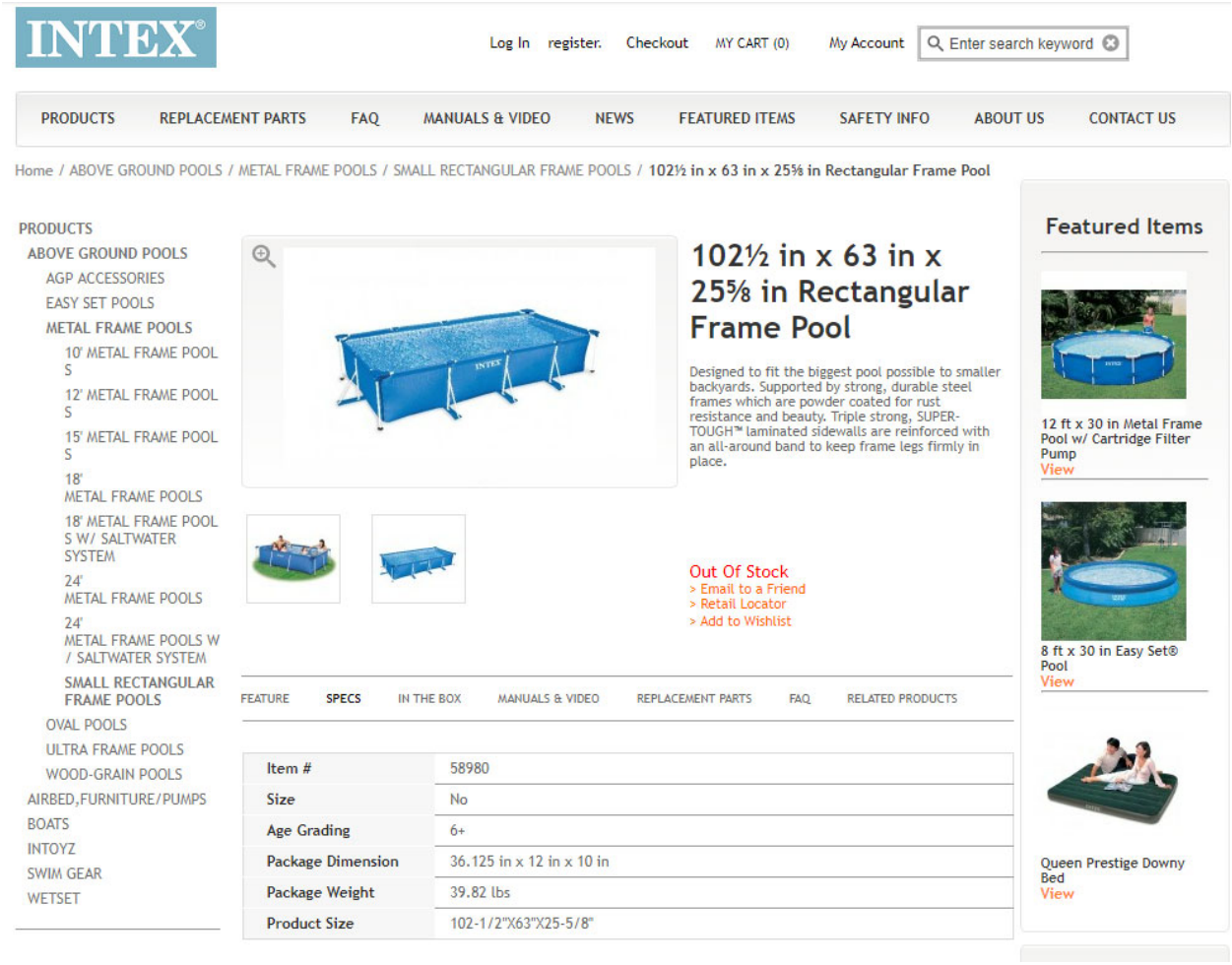
Exhibits 1010-1017 include Intex Above Ground Pool Catalogs (years 2005 through 2011 and 2014) that advertise, depict and publicly disclose the Intex Pool (*i.e.* 58980). These Catalogs were distributed and made publicly available to agents and clients on a yearly basis beginning at the outset of each sales season. EX1018. These Catalogs also include copyright dates associated with their year of release, all of which are more than a year prior to the earliest effective filing date of the '512 Patent. For example, Intex's 2007 Catalog (EX1012) includes the following on its front cover:




*2. Archived Intex Websites*

Exhibit EX1019 includes internet websites from the years 2012-2013 archived by the WayBack Machine showing that the Intex Pool was on sale or publicly disclosed prior to 2015. The archived records specifically list and show model number 58980 (the Intex Pool), including for example the following listing from 2013 archived at:

https://web.archive.org/web/20130704150942/http:/www.intexcorp.com/index.php/home/above-ground-pools/metal-frame-pools/small-rectangular-frame-pools/58980e.html.




EX1019 at p.7

The Archived Intex Websites (EX1019) are certified, correct copies of Intex's website pages obtained using the Wayback Machine as provided in the Wayback Machine Declaration. EX1019. Each of the internet archives in EX1019 have time stamps that predate the effective filing date of the '512 Patent by more than one year. EX1019. The MPEP recognizes that "[p]rior art obtained via the Wayback Machine sets forth a prima facie case that the art was publicly accessible at the date and time provided in the time stamp." MPEP §2128(II)(E).

*3. Intex Owner's Manuals*

Exhibits EX1021-1022 include two Owner's Manuals of the Intex Pool from the years 2006 and 2011. An Owner's Manual is included with Intex Pool, and bears a copyright date of the year it was published. EX1002, ¶36. These Owner's Manuals have copyright dates that predate the earliest effective date of the '512 Patent by over a year. EX1021-1022. Other than the copyright dates, the Owner's Manuals each disclose the same Intex Pool. EX1002, ¶36. Moreover, at least one of the Owner's Manuals (shown below) was archived by the Wayback Machine and downloadable from the Intex internet website archived here: https://web.archive.org/web/20120725020514/http:/www.intexdevelopment.com/index.php/home/above-ground-pools/metal-frame-pools/small-rectangular-frame-pools/58980.html. EX1019.[4] This Owner's Manual has a copyright date of 2011.

[4] This archived Owner's Manual is a certified, correct copy of an Owner's Manual of the Intex Pool downloadable in 2012, as provided in the Wayback Machine Declaration (EX1019, pp.1-2).




EX1019 at p.10, EX1022 at p.1

As seen on the covers of the Owner's Manuals, for example, each are for the same pool sized (102-1/2" x 63" x 25-5/8" or 260cm x 160cm x 65cm) – the Intex Pool (model 58980). The Owner's Manuals submitted herewith each demonstrate the prior on-sale and public availability of the Intex Pool. EX1002, ¶36.

*4. YouTube Videos*

Exhibit EX1023 is a YouTube video posted July 26, 2015 at https://www.youtube.com/watch?v=ETAiHLC89fI. This video shows an assembly of the Intex Pool. The title of this video includes "INTEX 58980" and shows "ITEM NO. 58980" (the Intex Pool) on the box of the pool being assembled. EX1002, ¶36.

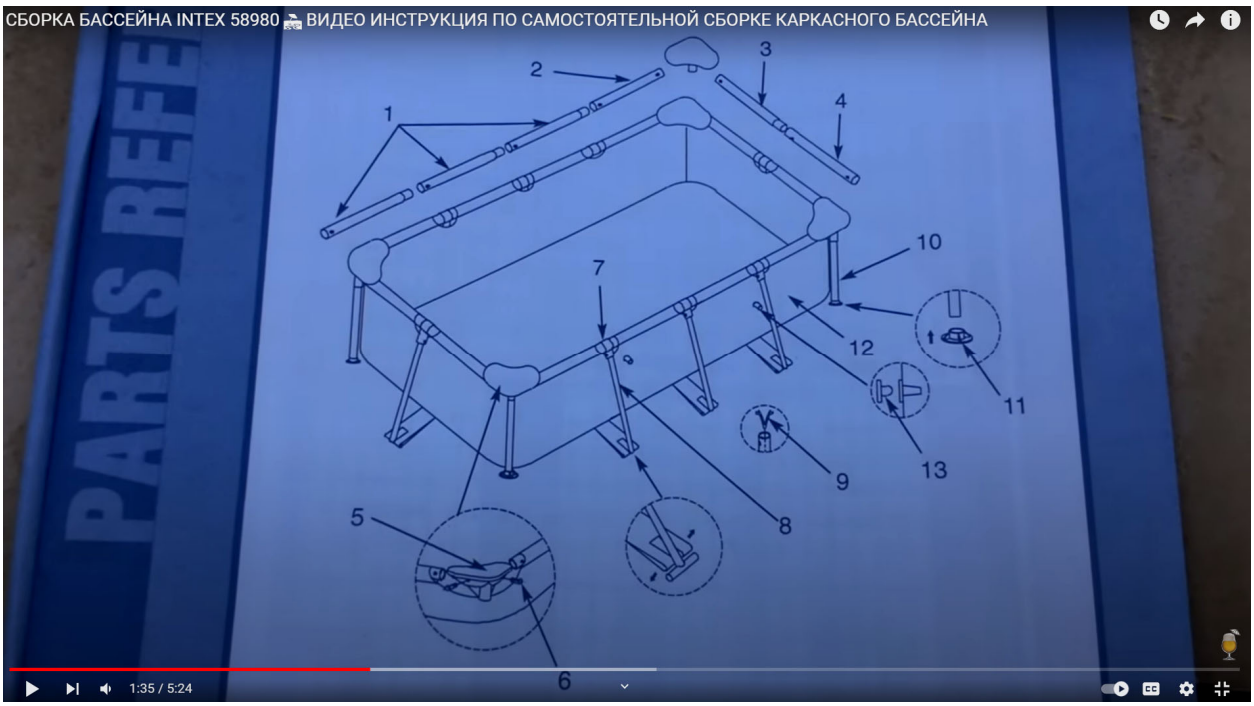



EX1023 at 0:12

This video also shows an Owner's Manual that has the same cover as the Owner's Manuals submitted herewith as EX1022. EX1002, ¶36.




EX1023 at 0:40



EX1023 at 1:35

The video also shows the assembled Intex Pool as follows:




EX1023 at 4:18

Exhibit EX1024 is a YouTube video posted on July 8, 2012 at https://www.youtube.com/watch?v=iilGN5cF-YU. It is titled "Pool Intex 58980", which again is a reference to the Intex Pool. It also includes "260x160x65" in the Title, which corresponds to the size of model number 58980 as per Intex's archived website and the Owner's Manuals. This video thus depicts the Intex Pool. EX1002, ¶36.




EX1024 at 0:02

Exhibit EX1025 is a YouTube video posted on July 12, 2012 at https://www.youtube.com/watch?v=1iBwYtnzYfs&t=258s. The video's title includes "Intex 260x160x65" again in reference to the size of the Intex Pool and shows it assembled.




EX1025 at 0:05

Each of these YouTube videos EX1023-1025 were posted to YouTube – and therefore were publicly accessible – prior to the earliest effective filing date of the '512 Patent.[5] In numerous cases, Google Custodians of Record have given sworn testimony that "[a]s explained on YouTube's support website, the date listed under a video is the date it was published and, if the video was posted publicly, that is the

[5] While EX1023 is a YouTube video published less than a year before the earliest effective filing date of the '512 Patent, it shows the assembly of the Intex Pool, which was sold and publicly available for more than a year before the effective filing date of the '512 Patent as evident by the remaining YouTube Videos, Catalogs, Archived Websites, and Owner's Manuals.

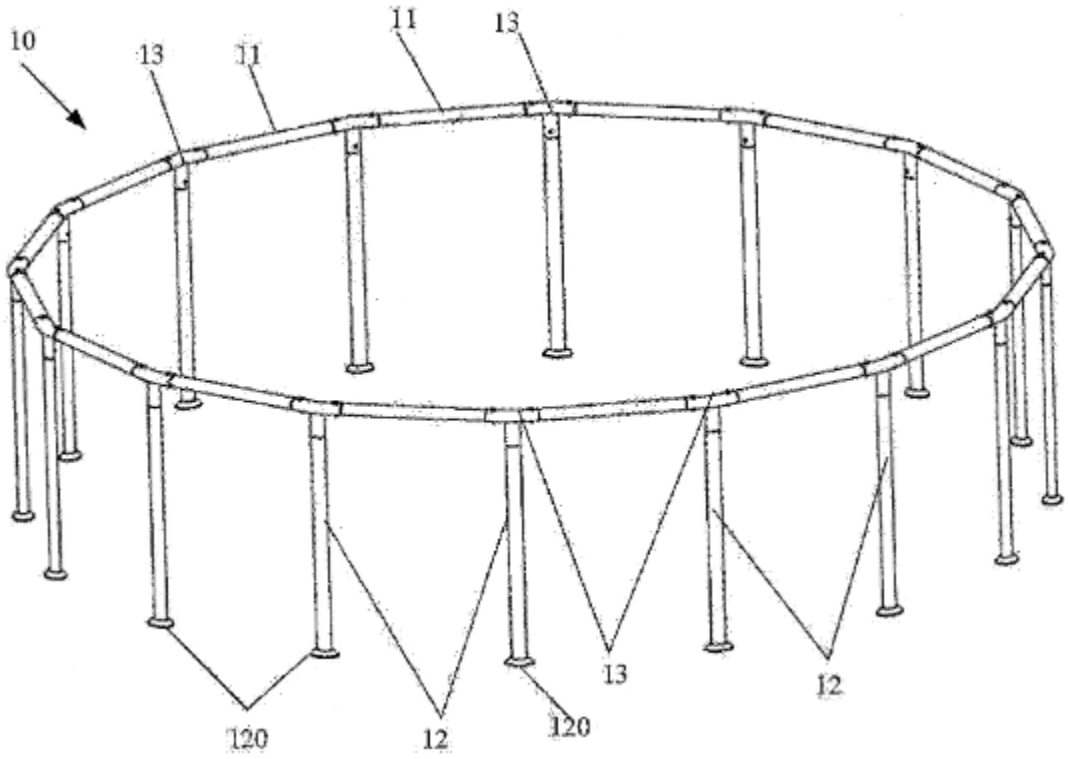
date on which it became available for anyone for viewing." *See, e.g., London Luxury LLC v. E & E Co., Ltd.*, PGR2021-00083, Ex. 1013; *see also* YouTube Help, Schedule Video Publish Time (https://support.google.com/youtube/answer/1270709) ("When you make a video public on YouTube, the date on the watch page is based on Pacific Standard Time (PST). If you want a certain date to show beneath your video, upload your video on that date."). Moreover, "[p]rior art disclosures on the Internet or on an online database are considered to be publicly available as of the date the item was publicly posted." MPEP §2128(II)(B). Because each of these YouTube videos was posted publicly on dates that predate the earliest effective filing date of the '512 Patent, they became publicly available to anyone viewing on that date. These YouTube Videos are evidence that the Intex Pool (model 58980) was in public use, on sale, and otherwise available to the public for over a year before the effective filing date of the '512 Patent.

**B. Liu**

Liu was filed by Petitioner Bestway on March 27, 2015 (Serial No. 14/671,845), and published on August 4, 2016. EX1006. Liu is therefore prior art to the '512 Patent under 35 U.S.C. §102(a)(2).

As shown in Fig. 1 below, Liu is directed to an AGP having a frame that supports a liner for holding water. (EX1006, Title, Abstract.) The frame has

horizontal support members 11 and vertical support members 12 that connect at T-shaped connectors 13. (*Id*. at [0085].)




EX1006, Fig. 1

With reference to Figures 4 and 7 below, the vertical support members 12 connect to the T-shaped connector 13 via a latch 15. The latch 15 is fitted within the end 121 of the vertical support member 12. *Id*. at [0091], [0094]. The latch 15 includes a helical spring 151 that biases a detent pin 152 outwardly through an aperture 122 in the vertical support member 12, and through an aligned aperture 135 of the T-shaped connector 13. *Id*. at [0092]-[0095].

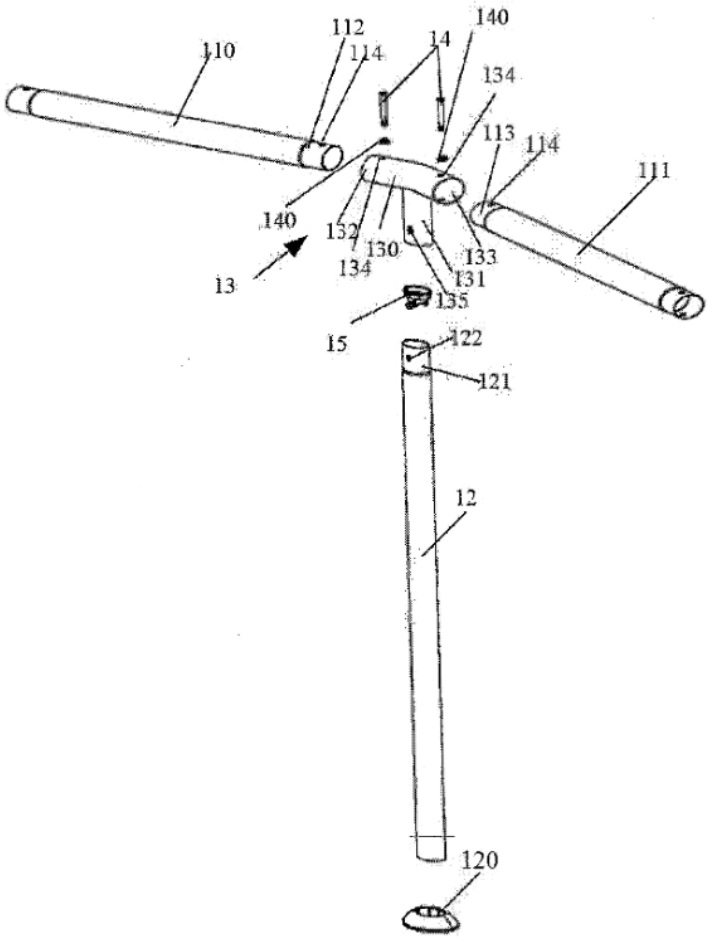



FIG. 4

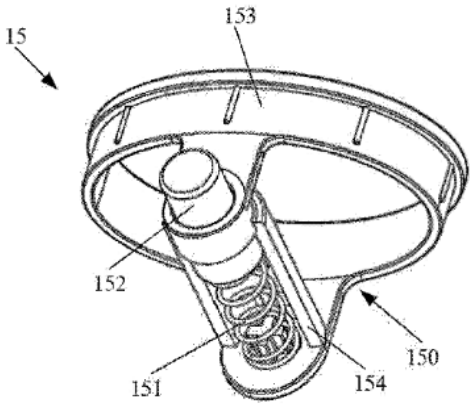



FIG. 7

EX1006, Figs. 4, 7

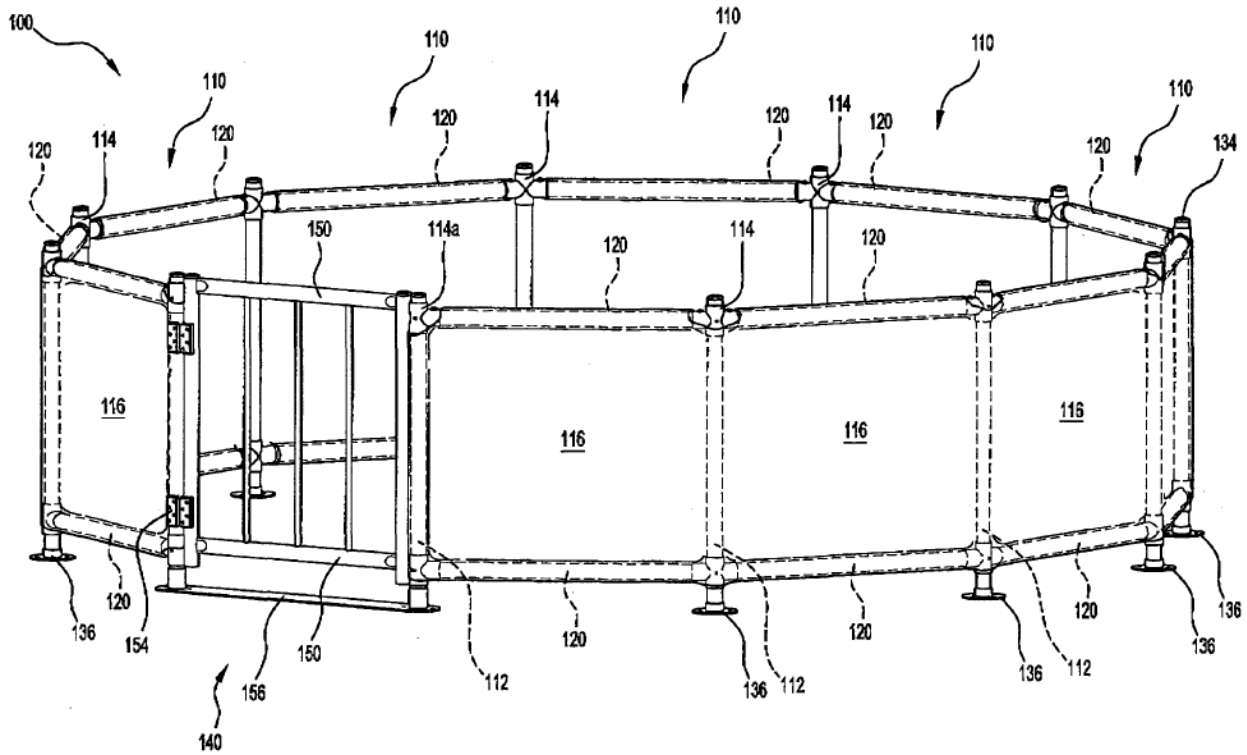
The horizontal support members 11 (shown above as 110, 111) also connect to the T-shaped connector 13, including via pins 14. *Id*. at [0190].

### C. Hunter

Hunter was filed on December 23, 2013, published on July 3, 2014, and claims priority to an Australian application filed on December 24, 2012. EX1008. Hunter is therefore prior art under 35 U.S.C. §102(a)(1) and/or (2).

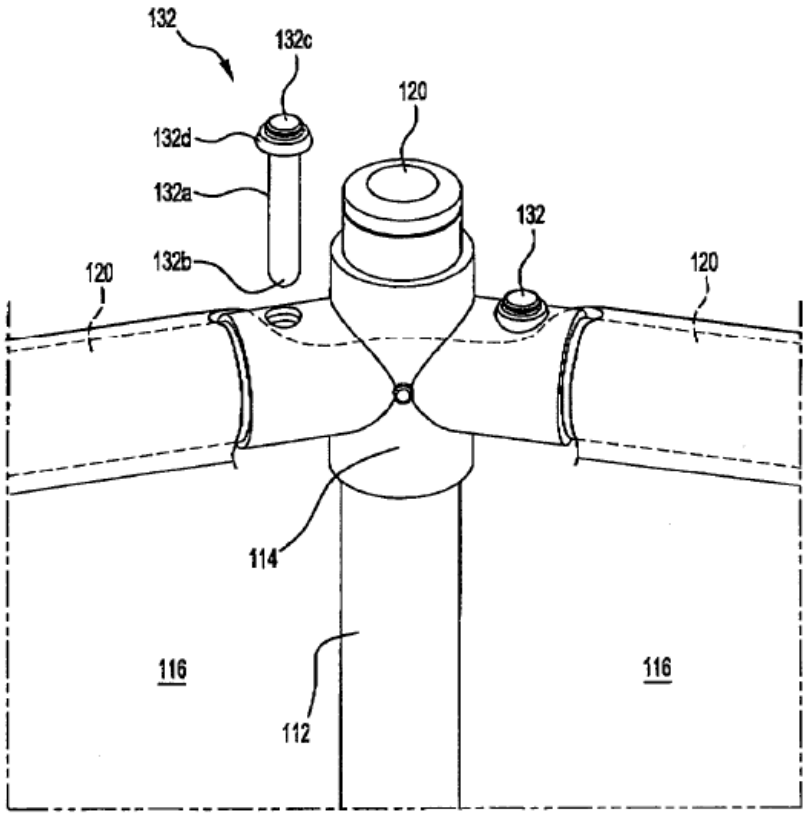
Hunter discloses a modular frame fence for surrounding an AGP. EX1008, Title, Abstract, [036]. Hunter's Background explains that "[a]bove-ground pools can be cost effectively manufactured and installed," but still present "a drowning hazard." *Id*. at [002]-[003]. The disclosed fence 100 provides "a safe and cost-effective fence for a pool" that "complies with standards and laws for a pool fence." *Id*. at [006].

Like AGPs, the fence 100 includes vertical struts 112 and horizontal struts 120 interconnected with linkages or "T-connectors" 114. *Id*. at [069], [0114], [0115], Fig. 9.




EX1008, Fig. 9.

As shown in Fig. 15 below, pins 132 connect each horizontal strut 120 to the T-connectors 114.




EX1008, Fig. 15.

## VII. GROUND 1: CLAIMS 1-24 ARE INVALID UNDER 35 U.S.C. §112(b) AS INDEFINITE

A claim is indefinite under §112 when, viewed in light of the specification and prosecution history, the claim fails to inform a POSA about "the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901, 910 (2014).

### A. Claims 1-19 are Indefinite

The Width Limitation of Element [1.9] requires: "wherein a width of the vertical joint portion accounts for at least 50% of *a width between the first and second pins*."[6] The Width Limitation is unclear as its scope (namely how to determine the width between the pins) cannot be determined with reasonable certainty. EX1002, ¶¶50-52. Neither the Width Limitation nor any other claim language provides any precision as to the orientation of the pins or from what location(s) along the pins the width measurements should be taken. *Id*.

As such, a POSA reading the Width Limitation would be left with some questions:

- If the pins are oriented at an *angle* (*i.e.*, not parallel), where along the pin lengths is the width between the first and second pins to be measured?
    - If the pins are oriented at an angle, would the width between the pins depend on the length of the pins?
- Is the width between the first and second pins measured between the pin centerlines? Or somewhere else, such as the innermost pin surfaces

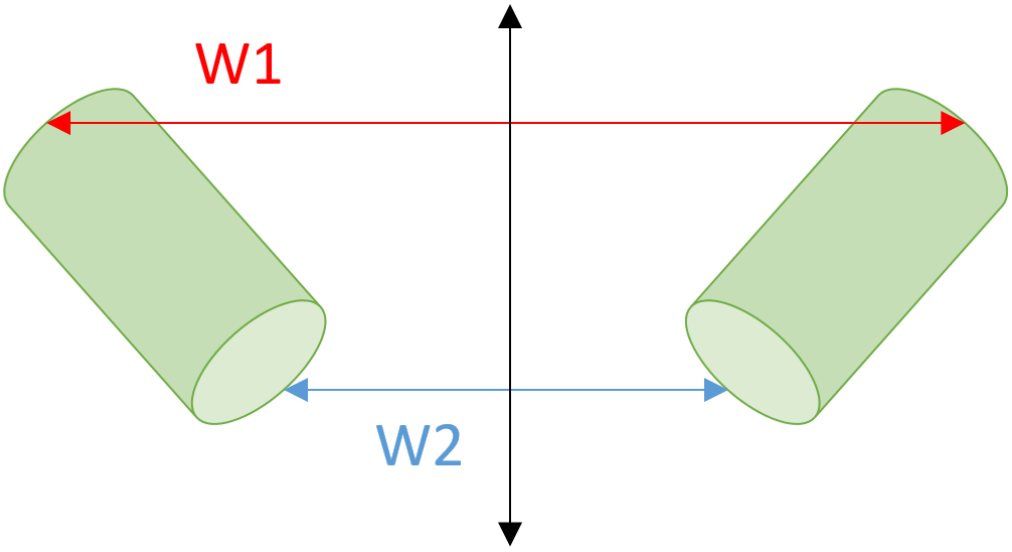
[6] The Width Limitation of Element [15.5] uses the phrase "a majority" instead of "at least 50%", but is otherwise the same and is indefinite for at least the same reasons.

(*i.e.*, the surfaces of the first and second pins that are closest to each other)?

EX1002, ¶52. Measuring the width between the pins utilizing different locations along the pins can yield different width measurements. EX1002, ¶53. Accordingly, as discussed below, a POSA cannot readily determine the scope of the Width Limitation, rendering Claims 1-19 indefinite.[7]

First, nothing in the claims requires any particular pin orientation, and therefore the "width between the pins" can vary depending upon their orientation. EX1002, ¶54. Below is a schematic illustrating this point. If pins (green) in the first and second joint portions are angled relative to one another with respect to a vertical axis (black), the claim provides no guidance as to where along the pin length the width should be measured. This is significant because a width measurement at the pin upper ends (red, W1) differs from a width measurement at the pin lower ends (blue, W2) – as do other width measurements taken along the lengths of the pins between the ends. EX1002, ¶54.

[7] As the Width Limitation is found in independent claims 1 and 15 the '512 Patent, and claims 2-14 and 16-19 depend therefrom, a finding that the Width Limitation is indefinite renders claims 1-19 invalid.




EX1002, ¶54

The same would hold true if the pins were oriented horizontally, yet angled (*i.e.*, not parallel) to one another. For example, consider the above schematic except with the black line representing a horizontal axis (*i.e.*, the view of the pins is from above). EX1002, ¶55.

Like the claims, the specification provides no guidance as to how a POSA would reconcile these issues. EX1002, ¶56. The specification's only description is in reference to Figure 4 (annotated below) which identifies the width $W_{J3}$ of the vertical joint portion (highlighted yellow below) and the width $W_{J2}$ between the pins 33 (highlighted red).

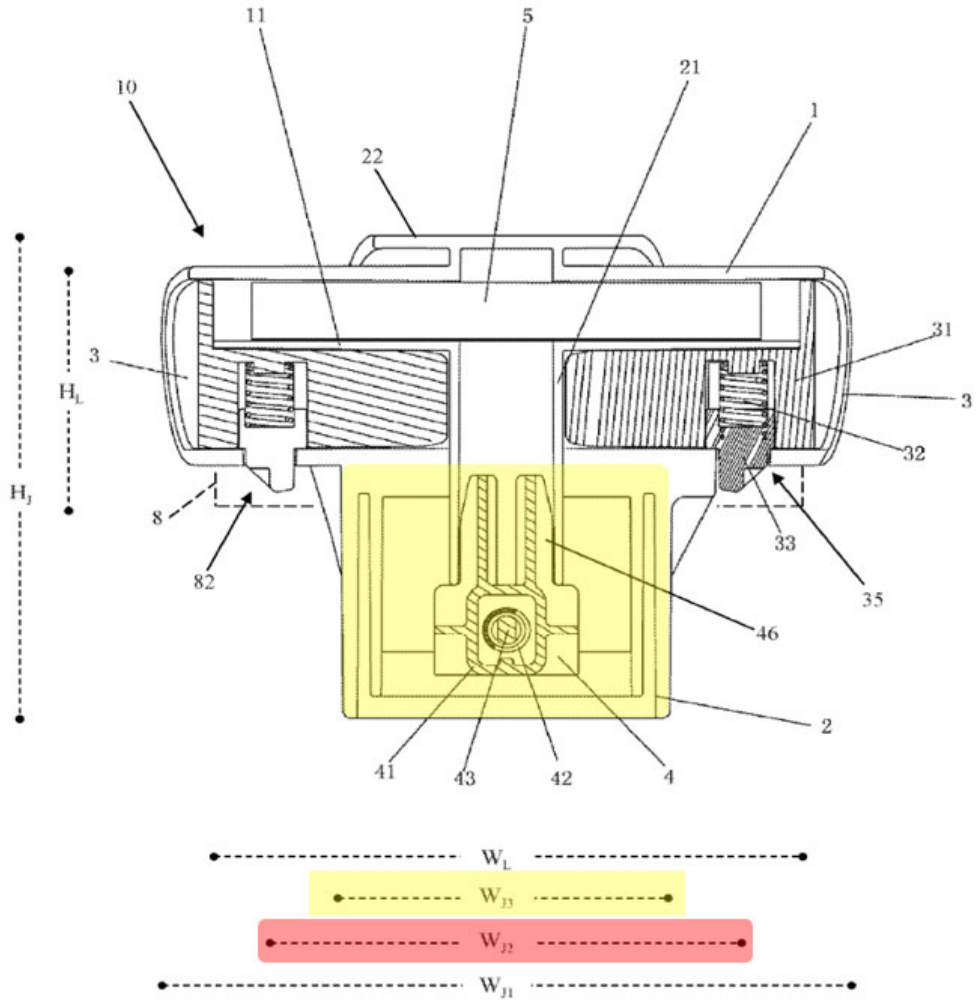



FIG. 4

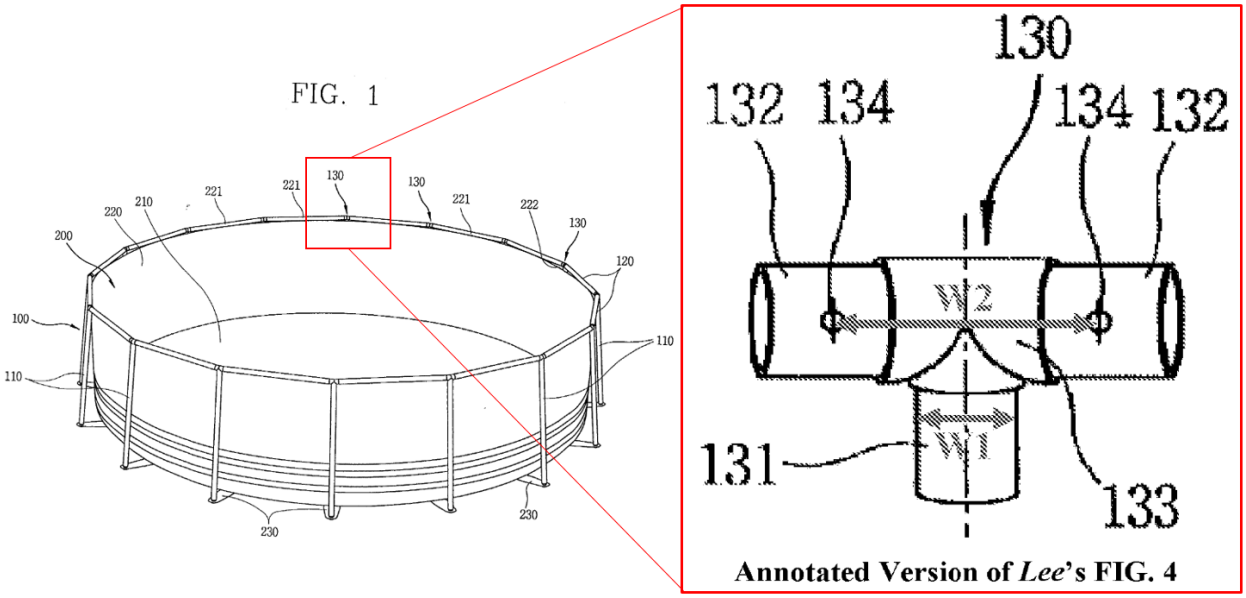
EX1001. Fig. 4 (annotated); EX1002, ¶55

However, the specification does not limit the pins to any particular orientation – it only describes one embodiment (illustrated above) with the pins "extending radially outward (*e.g.*, downward) through a hole 35 in the horizontal joint portion". EX1001, 4:18-20.[8]

[8] Claims 1-19 similarly lack any pin orientation requirement or limitation.

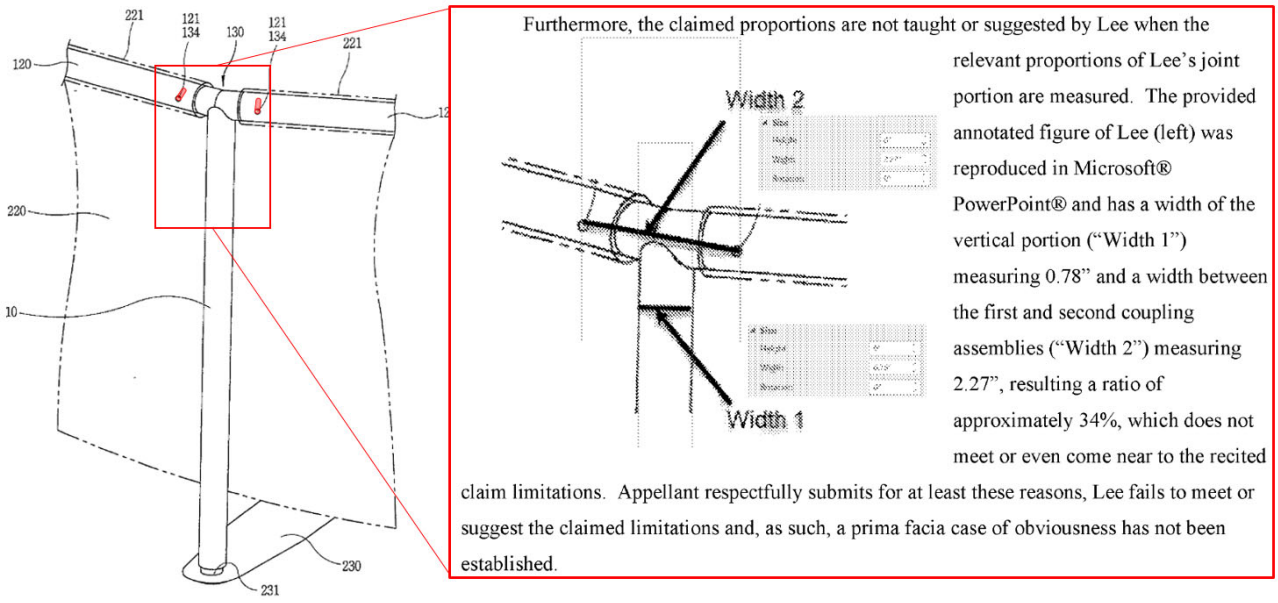
The prosecution history only adds to the uncertainty and highlights the indeterminate nature of the Width Limitation. Specifically, during prosecution of the parent '572 Patent (to which the '512 Patent claims priority), the Examiner contended that U.S. Patent Publication No. 2002/0042948 ("Lee," EX1009) taught the Width Limitation. In multiple attempts at distinguishing Lee from the Width Limitation, the Applicant measured the width between the pins at different locations on Lee's Figures. EX1002, ¶57.

In an initial attempt, the Applicant argued with reference to annotations it made to Lee's Figure 4 (reproduced below) that the width of its vertical joint portion (W1) is not "at least 50%" of the width between the pins (W2). EX1005, pp.252-259. As can be seen, the horizontal portions 132 of Lee's T-shaped joint 130 are positioned at an oblique angle with respect to one another, and thus the pins are oriented at an angle with respect to a horizontal axis like discussed above in connection with Figure 4 of the '512 Patent. EX1002, ¶58. As the view of Lee's Figure 4 is from the *inside* of the frame pool, the Applicant identified the width (W2) as the distance between the *inner*-facing ends of Lee's pins. *Id*.




EX1009, Figs. 1, 4 (annotated); EX1005, p.253; EX1002, ¶58

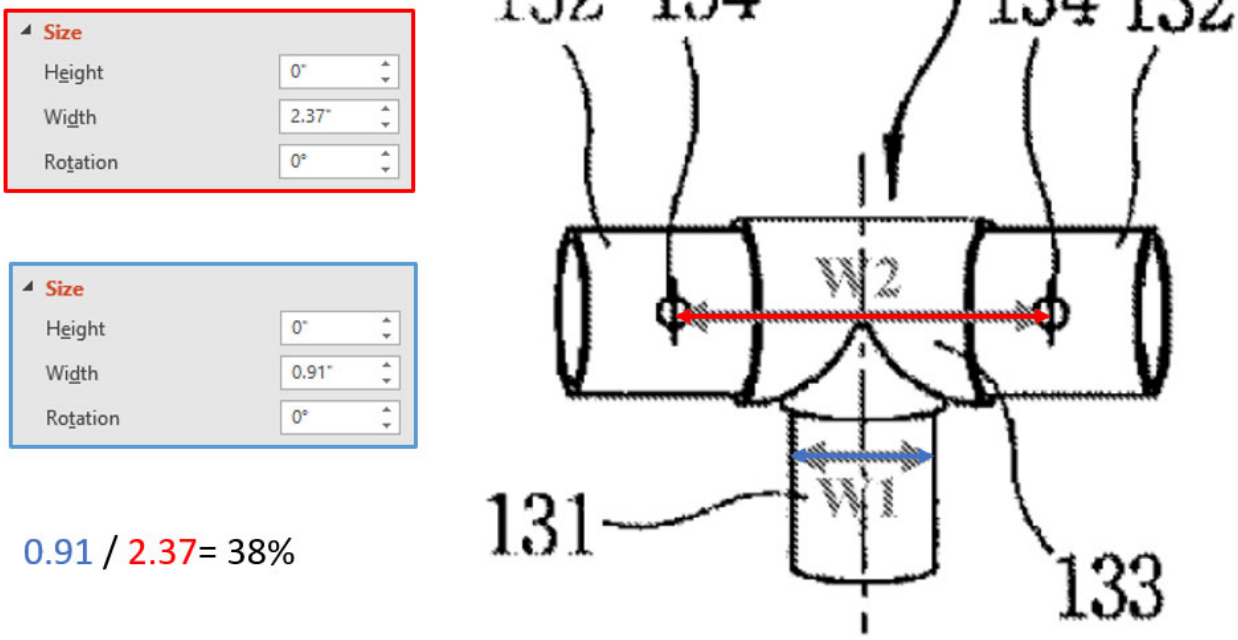
Then, in a second attempt, the Applicant annotated a different figure of Lee (Figure 2) as shown below, which is a view taken from the *outside* of the frame pool. EX1002, ¶59. Unlike the annotations above where the Applicant measured the width between the *inner*-facing ends of the pins, here it noted "Width 2" as the distance between the *outer*-facing ends of the pins (annotated in red below) and argued as follows:




EX1005, p.544; EX1009, Fig. 2 (annotated); EX1002, ¶59

Thus, Applicant's measurement methodology from the outer-facing ends of the pins yields a claimed ratio of approximately 34%. Due to the angled nature of the pins in Lee, measuring the widths at the outer-facing ends will unquestionably yield a different value than a measurement from the inner-facing ends. EX1002, ¶60. Performing the same PowerPoint measurement exercise on Lee's Figure 4 (*i.e.*, from the *inner*-facing ends of the pins) yields a ratio of the width between the pins (W2) to the width of the vertical portion (W1) of 38%.[9]

[9] Whether or not the drawings are to scale, employing Intex's methodology shows that measuring at different pin locations in Lee will yield different widths.

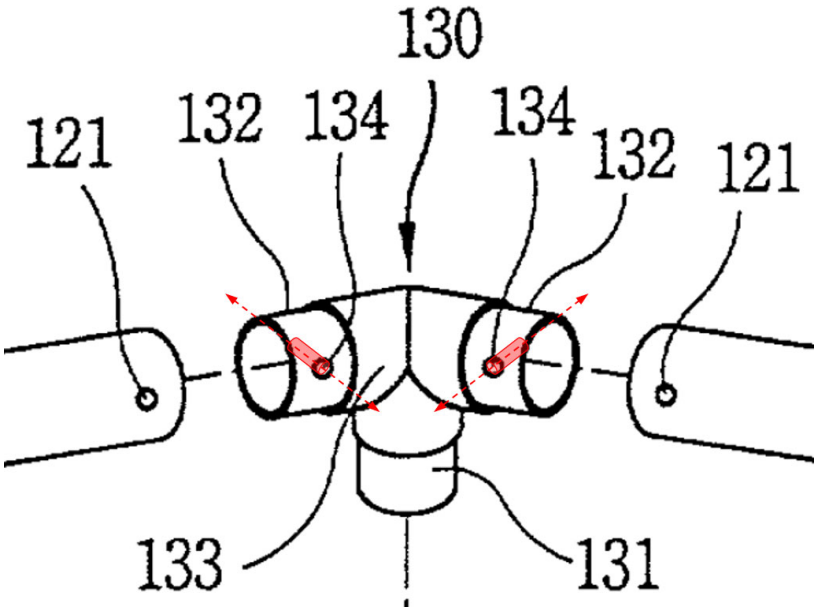



**Annotated Version of *Lee*'s FIG. 4**

EX1005, p.253 (annotated); EX1002, ¶60

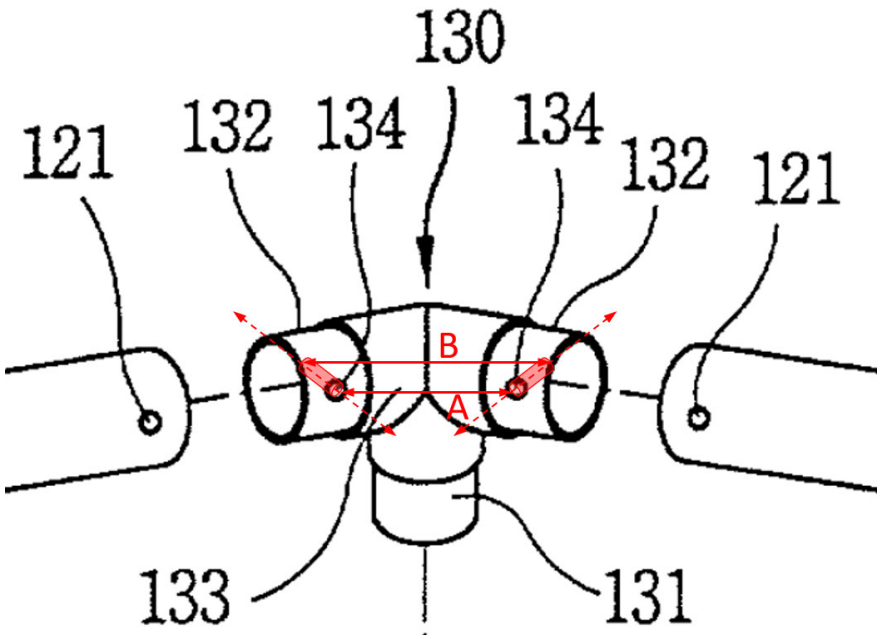
Thus, where two pins are oriented at an angle with respect to one another, the width measurements will ***differ depending on where along the length of the pins the measurement is taken from***. The claims are therefore indefinite because it is not clear where along the pins the "width between the first and second pins" should be measured. EX1002, ¶¶60-61.

This issue is amplified when applied to 90-degree joints, *i.e.* corner joints for a rectangular pool. Consider Lee's Figure 3 for example, annotated below to show the orientation of the pins 134 within the joint 130, with the pins 134 extending along the direction of the red arrows.



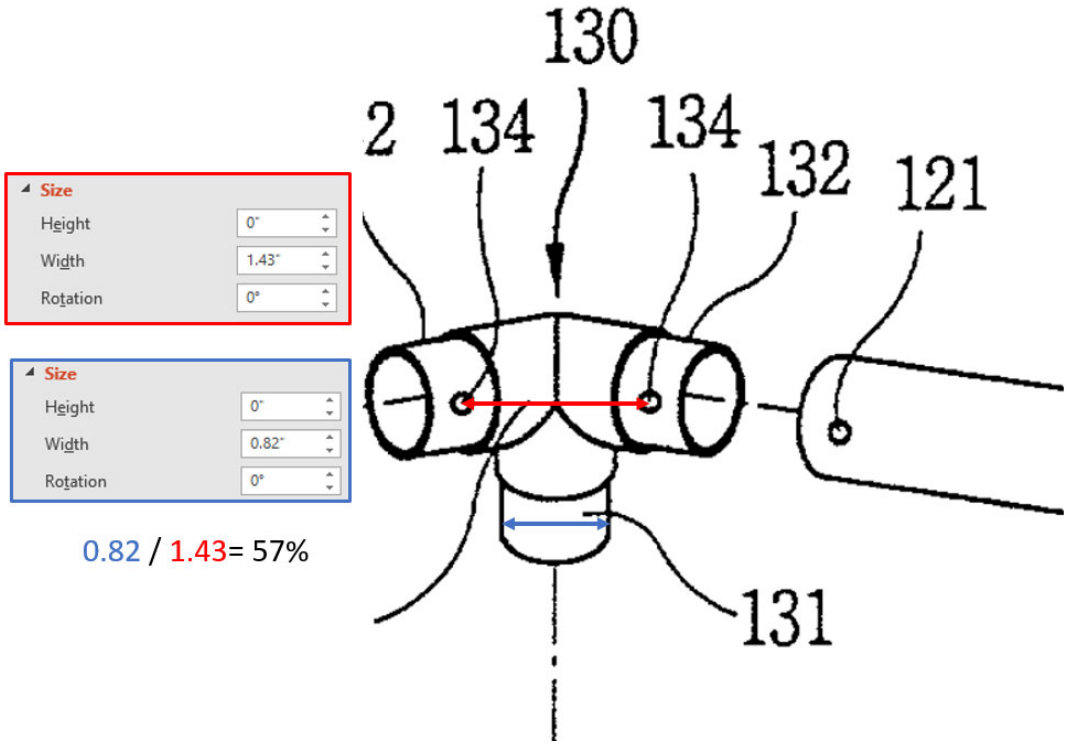

EX1009, Fig. 3 (annotated); EX1002, ¶62

Since the pins 134 are not parallel, the "width between the pins" will again vary depending on where along the pin lengths the measurement is taken. For example, the width at the pin inner ends (Line A) is demonstrably less than the width at the pin outer ends (Line B).




EX1009, Fig. 3 (annotated); EX1002, ¶62

Applying Applicant's same PowerPoint measurement technique on the T-shaped connector 130 in Lee's Figure 3 (instead of Figures 2 and 4, which Applicant annotated) demonstrates that this connector 130 *does* disclose the Width Limitation. See below where Petitioner utilizes the same PowerPoint measurement techniques used by Applicant to distinguish Lee's Figure 3, revealing that the width of Lee's vertical joint portion 131 is 57.3% of the width between the pins 134 – *i.e.*, greater than 50%. EX1002, ¶63.




EX1009, Fig. 3 (annotated); EX1002, ¶63

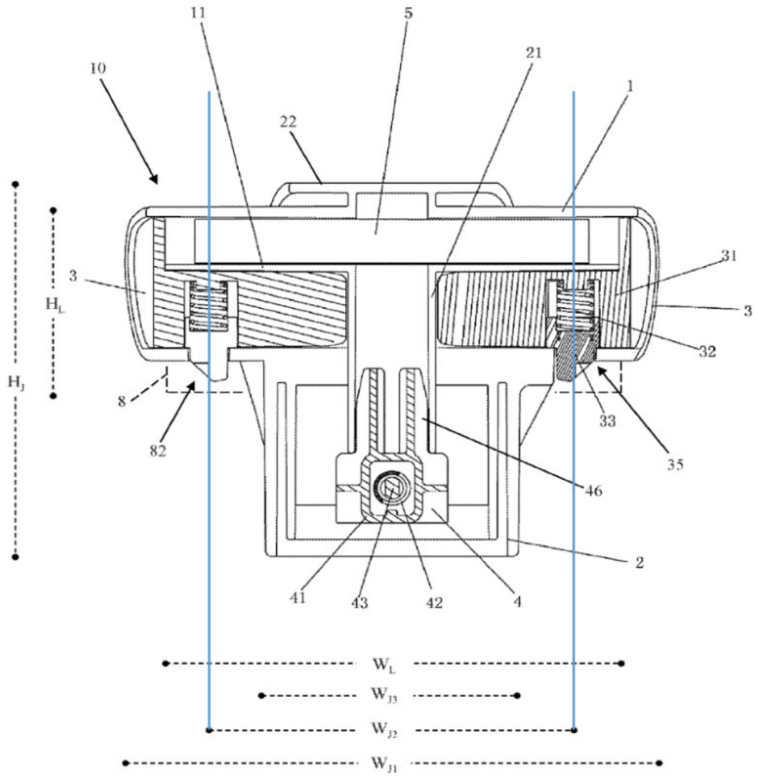
And clearly, because of the angle of Lee's corner connector 130, measuring the width between the pins at their *outer* ends – like Applicant did with respect to Figure 2 of Lee – would yield a drastically different measurement with the width of

the vertical joint portion being *less than* 50% of the width between the pins. EX1002, ¶64.

The fact that measuring at one pin location can yield an arrangement that falls within the Width Limitation, but measuring at another location on the pins can yield an arrangement that falls outside it, demonstrates that the Width Limitation cannot be defined with reasonable certainty. EX1002, ¶65. *See, e.g., Ball Metal Beverage Container Corp. v. Crown Packaging Tech., Inc.*, 838 Fed.Appx. 538, 542 (Fed. Cir. 2020) ("Under our case law, then, a claim may be invalid as indefinite when (1) different known methods exist for calculating a claimed parameter, (2) nothing in the record suggests using one method in particular, and (3) application of the different methods result in materially different outcomes for the claim's scope such that a product or method may infringe the claim under one method but not infringe when employing another method" and noting that if one measurement method yielded an angle within the claimed range, but another method "resulted in an angle outside of the claimed range, then that would be a material[] difference.") *See also Dow Chem. Co. v. Nova Chem. Corp.*, 803 F.3d 620, 630–31 (Fed. Cir. 2015) (finding the claim language "slope of strain hardening coefficient" was indefinite in view of multiple methods of measuring the "slope"); *Teva Pharmaceuticals USA Inc. v. Sandoz Inc*., 789 F.3d 1334 (Fed. Cir. 2015) (finding "molecular weight" to be an indefinite claim term because measuring "molecular weight" according to

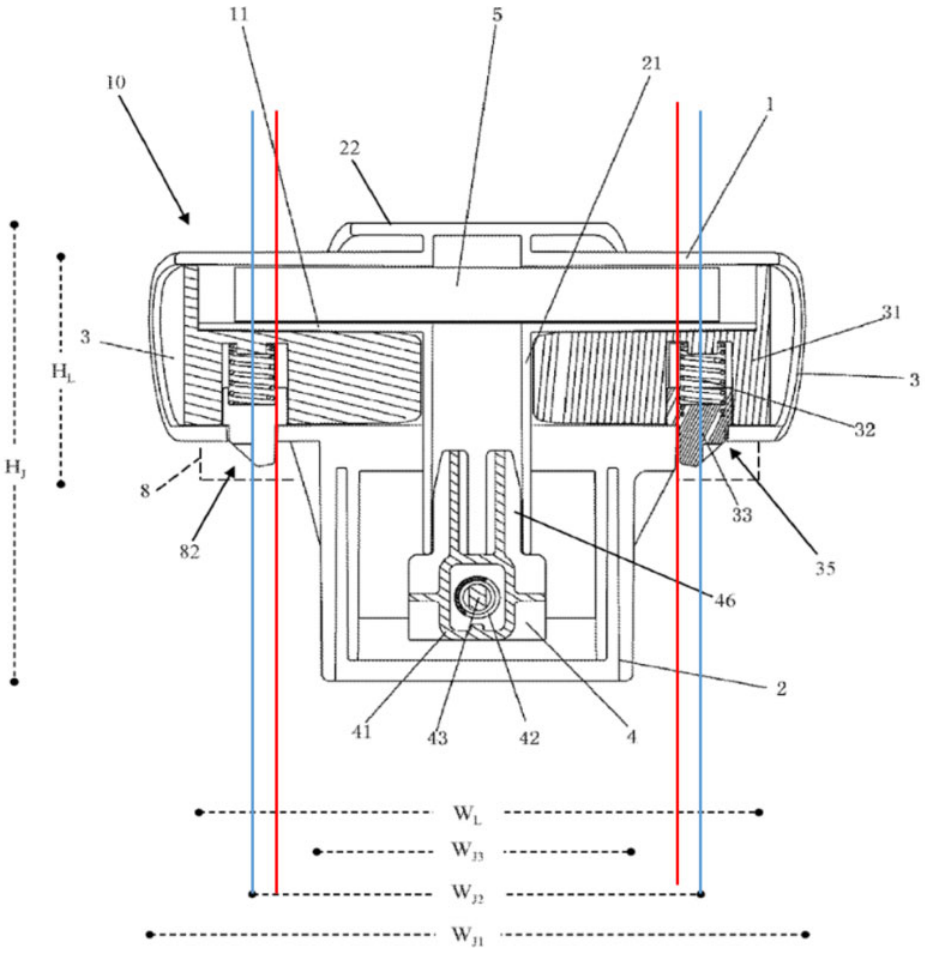
"peak average," "number average" or "weight average" could yield different results); *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1371 (Fed. Cir. 2015) ("a claim is indefinite if its language might mean several different things and no informed and confident choice is available among the contending definitions" (internal quotations marks omitted)).

Finally, even if one measures the width between *parallel* pins, the Width Limitation remains indefinite. Specifically, the annotated Figure 4 below denotes the width between the pins as $W_{J2}$ (the distance between the blue lines below). EX1002, ¶66. This width $W_{J2}$ appears to be a distance between the pins' centerlines.




EX1001, Fig. 4 (annotated)

However, nothing in the specification requires that the width between the pins to be measured from the pins' centerlines. Indeed, the ordinary meaning of "width" is a measurement "from one side to the other". EX1026. Thus, the ordinary meaning of the Width Limitation encompasses a distance between pin side surfaces such as the inner surfaces (surfaces facing one another) as graphically illustrated by the red lines in the figure below. EX1002, ¶67.




EX1001, Fig. 4 (annotated); EX1002, ¶67

As shown above, each of these distances (between pin centerlines and pin inner surfaces) corresponds to a width between the pins as claimed, but yield different measurements and thus render this term's scope unclear.[10] EX1002, ¶68.

For all of the above reasons, Claims 1-19 are indefinite because the claimed "width between the first and second pins," when read in light of the specification and the prosecution history, "fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus,* 572 U.S. at 901 (2014).

As the Width Limitation appears in independent Claims 1 and 15, and Claims 2-14 and 16-19 depend from either Claim 1 or 15, Claims 1-19 are indefinite.

**B. Claims 20-24 are Indefinite**

With respect to the Width Limitation, Claim 20 reads identical to Claims 1 and 15 except "coupling assemblies" are claimed rather than "pins" ("wherein a width of the vertical joint portion accounts for at least 50% of a width between the *first and second coupling assemblies*"). The term "coupling assembly" includes pin 33 as well as base 31 and helical spring 32.

While the "width between the first and second coupling assemblies" of claim 20 could be interpreted to be different than the "width between the first and second

[10] A POSA would also understand that because the claims require the width be measured between the pins, the distance the pins extend out of the openings can also alter the width measurement. EX1002, ¶65. This further highlights the lack of clarity of this term.

pins" of Claims 1 and 15, Claims 20-24 are indefinite for similar reasons. EX1002, ¶69. The claimed "width between the first and second coupling assemblies," when read in light of the specification and the prosecution history, "fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus,* 572 U.S. at 901 (2014). In particular, a POSA would not know where along the coupling assemblies the width measurements should be taken, for the same reasons explained above regarding Claims 1-19 (*i.e.* innermost surface, centerline, inward (closer to pool cavity) side or outer side). EX1002, ¶69. Thus, Claim 20 – and Claims 21-24 – which depend therefrom are similarly indefinite.

## VIII. GROUND 2: CLAIM 19 IS INVALID UNDER 35 U.S.C. §112(a) FOR LACK OF WRITTEN DESCRIPTION

To satisfy the written description requirement under 35 U.S.C. §112(a), an application must "reasonably convey[] to those skilled in the art that the inventor had possession of" and "actually invented" the claimed subject matter. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). This requirement ensures that the claims do "not overreach the scope of the inventor's contribution to the field of art as described in the patent specification." *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345. Section 112 has a "statutory mandate that 'the specification shall contain a written description of the invention,' and that requirement is not met if… the specification does not adequately describe

the invention." *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F. 3d 956, 969 (Fed. Cir. 2002).

Claim 19 lacks written description support. Element [19.1] requires "a height of the hole in the liner is less than a distance between the first pin and the coupling assembly" that couples the vertical frame member to the vertical portion of the frame joint. The "height of the hole in the liner" is labeled as $H_L$ in Figure 4 (below, red).

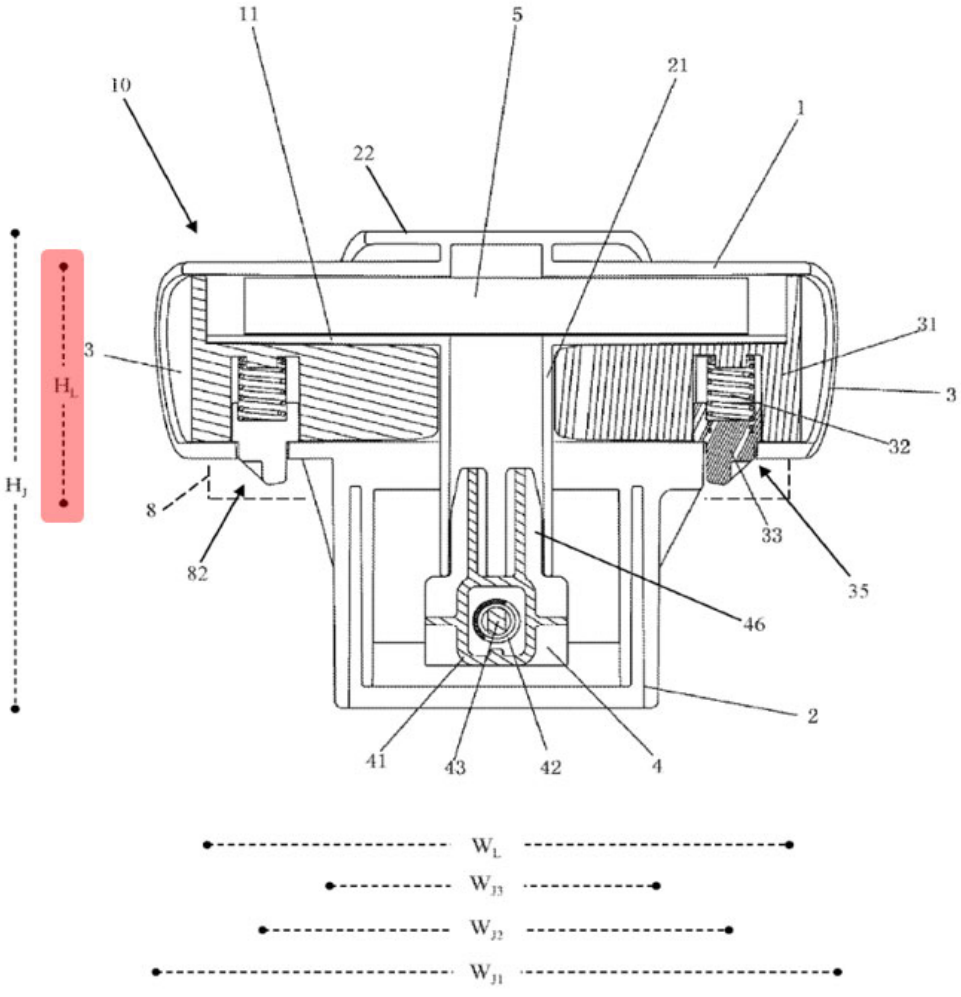



**FIG. 4**

EX1001, Fig. 4 (annotated); EX1002, ¶70

However, the '512 Patent makes no mention of any distance between the first pin (of a *horizontal* joint portion) and the coupling assembly (of a *vertical* joint portion). Petitioner has annotated Figure 4 below to label these two components. Further, neither the Figures nor the Specification discloses any distance between these components, let alone such a distance compared to the height of the hole in the liner $H_L$. EX1002, ¶71.

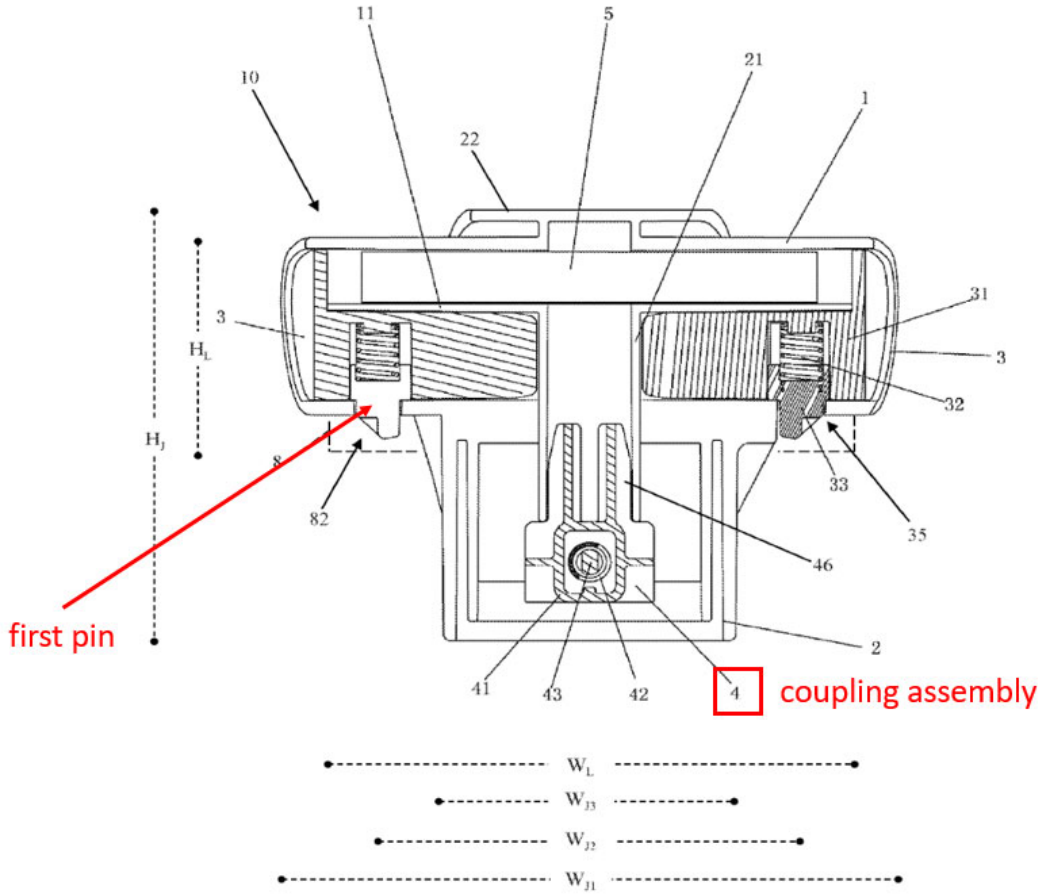



FIG. 4

EX1001, Fig. 4 (annotated); EX1002, ¶71

In fact, Figure 4 actually contradicts this relationship in Claim 19. Using Applicant's PowerPoint technique, the measured length of the height of the liner hole $H_L$ is 1.57" while the measured length of line D1 is 1.12" – where D1 is the distance between the first pin and the coupling assembly. Thus, $H_L$ is greater than D1, which is *opposite* of Element [19.1]. EX1002, ¶72.

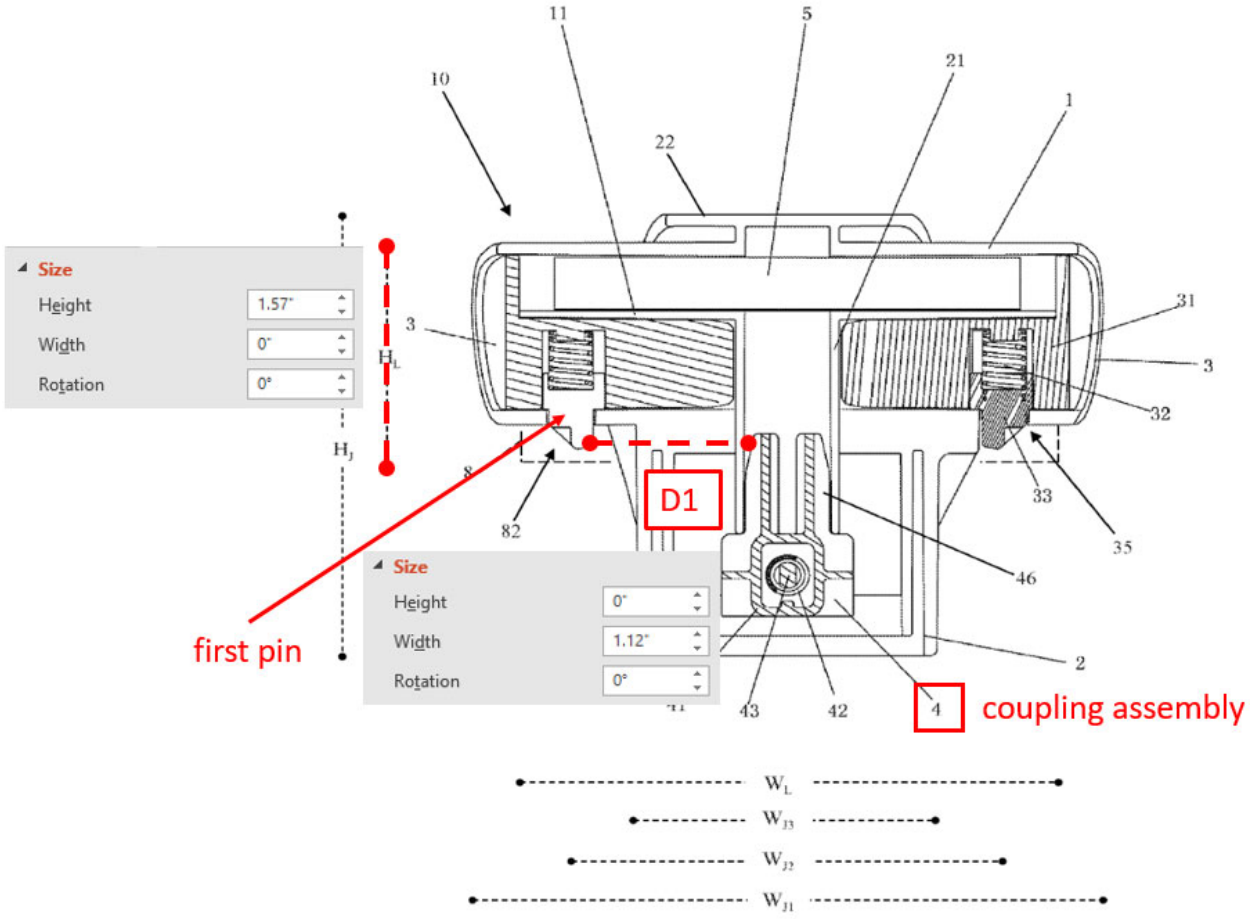



FIG. 4

EX1001, Fig.4 (annotated); EX1002, ¶72

Indeed, no reasonable measurement of the distance between the first pin and the vertical joint coupling assembly (including a vertical distance between the two)

would exceed the height of the hole in the liner $H_L$. EX1002, ¶73. Thus, the '512 Patent does not "reasonably convey[] to those skilled in the art that the inventor had possession of" and "actually invented" the claimed subject matter, and thus Claim 19 is invalid under §112. *Ariad Pharms,* 598 F.3d at 1351.

## IX. GROUND 3: CLAIMS 1, 9, 11-15 AND 17 ARE OBVIOUS IN VIEW OF THE INTEX POOL

### A. Claim 1

#### 1. Element [1.0][11]

Intex identifies the Intex Pool as an "above ground pool" in its Intex websites, and Catalogs. EX1012-1019. As shown below, the Intex Pool is assembled for use above the ground:

[11] The claim language corresponding to each claim Element is set forth beginning on page 1.




EX1025 at 0:05

The Owner's Manual for the Intex Pool also refers to it as an "above ground pool." EX1021-1022. To the extent Element [1.0] (the preamble) is a limitation, the Intex Pool is an AGP. EX1002, ¶74.

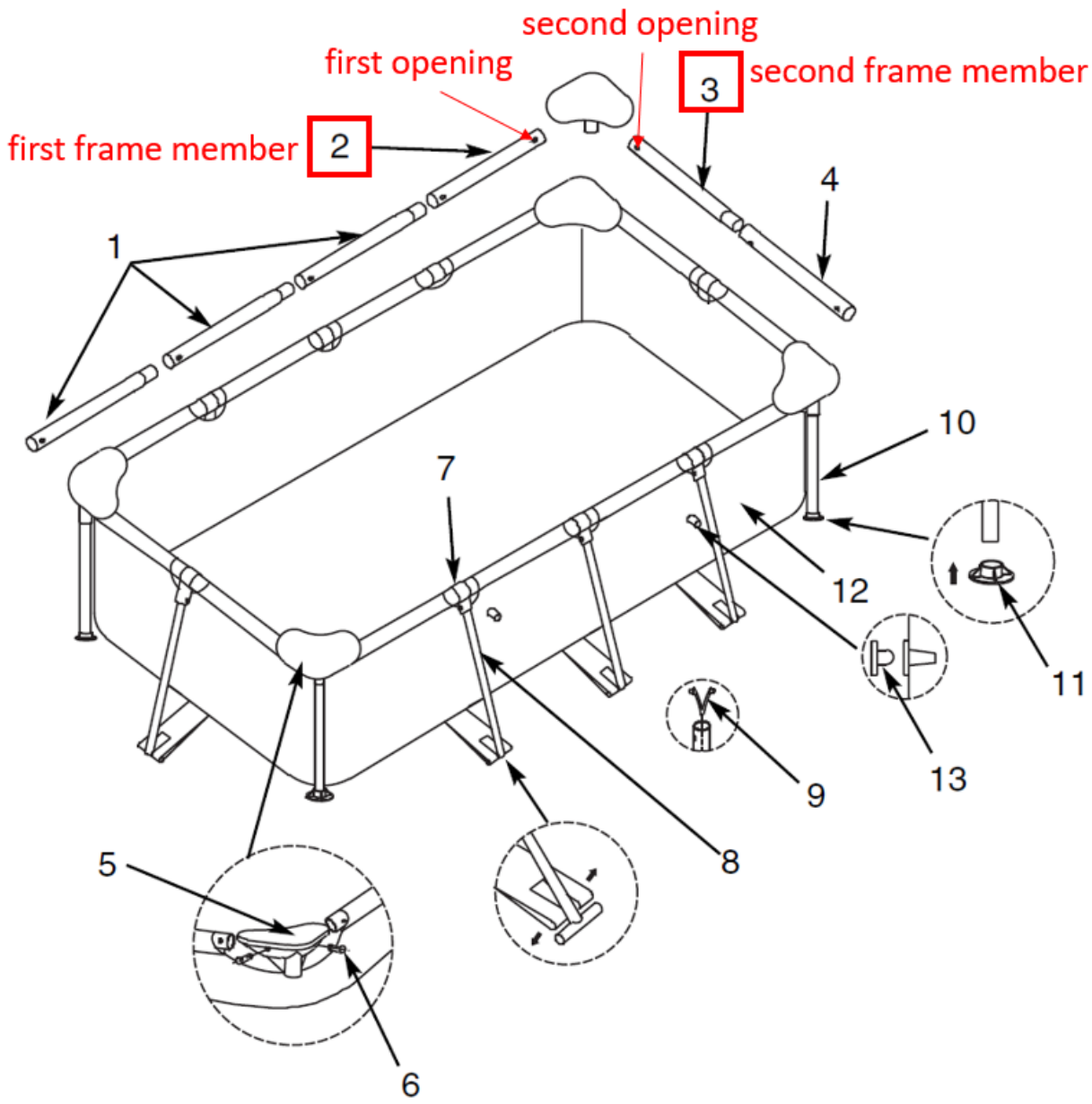
**2. Elements [1.1] and [1.2]**

The Intex Pool has several horizontal frame members, which the Owner's Manual identifies for example as "HORIZONTAL BEAM (B)" and "HORIZONTAL BEAM (C)":

| REF. NO. | DESCRIPTION | 86-5/8" x 59" x 23-5/8" (220cm x 150cm x 60cm) | 102-1/2" x 63" x 25-5/8" (260cm x 160cm x 65cm) | 118" x 78-3/4" x 29-1/2" (300cm x 200cm x 75cm) | 177-1/4" x 86-5/8" x 29-1/2" (450cm x 220cm x 75cm) |
|---|---|---|---|---|---|
| | | SPARE PART NO. | | | |
| 1 | HORIZONTAL BEAM (A) | 10947 | 10948 | 10949 | 10951 |
| 2 | HORIZONTAL BEAM (B) | 10952 | 10953 | 10954 | 10956 |
| 3 | HORIZONTAL BEAM (C) | 10947 | 10958 | 10959 | 10961 |
| 4 | HORIZONTAL BEAM (D) | 10952 | 10963 | 10964 | 10966 |
| 5 | CORNER JOINT (WITH CORNER SEAT) | 10573 | 10573 | 10573 | 10573 |
| 6 | PIN (WITH 2 EXTRA) | 10574 | 10574 | 10574 | 10574 |
| 7 | "T" JOINT | 10967 | 10967 | 10967 | 10967 |
| 8 | "INVERTED T" SIDES SUPPORT LEG (SPRING PIN INCLUDED) | 10968 | 10969 | 10970 | 10970 |
| 9 | SPRING PIN | 10313 | 10313 | 10313 | 10313 |
| 10 | VERTICAL CORNER LEG | 10628 | 10557 | 10563 | 10563 |
| 11 | VERTICAL LEG END CAP | 10576 | 10576 | 10576 | 10576 |
| 12 | POOL LINER (DRAIN VALVE CAP INCLUDED) | 10942 | 10943 | 10944 | 11218 |
| 13 | STRAINER HOLE PLUG (WITH 1 EXTRA) | 10127 | 10127 | 10127 | 10127 |
| 14 | DRAIN CONNECTOR | 10201 | 10201 | 10201 | 10201 |
| 15 | DRAIN VALVE CAP | 10649 | 10649 | 10649 | 10649 |

EX1022, p.6; EX1021, p.6

These two beams are identified by reference numbers 2 and 3 in the figure from the Owner's Manual below.

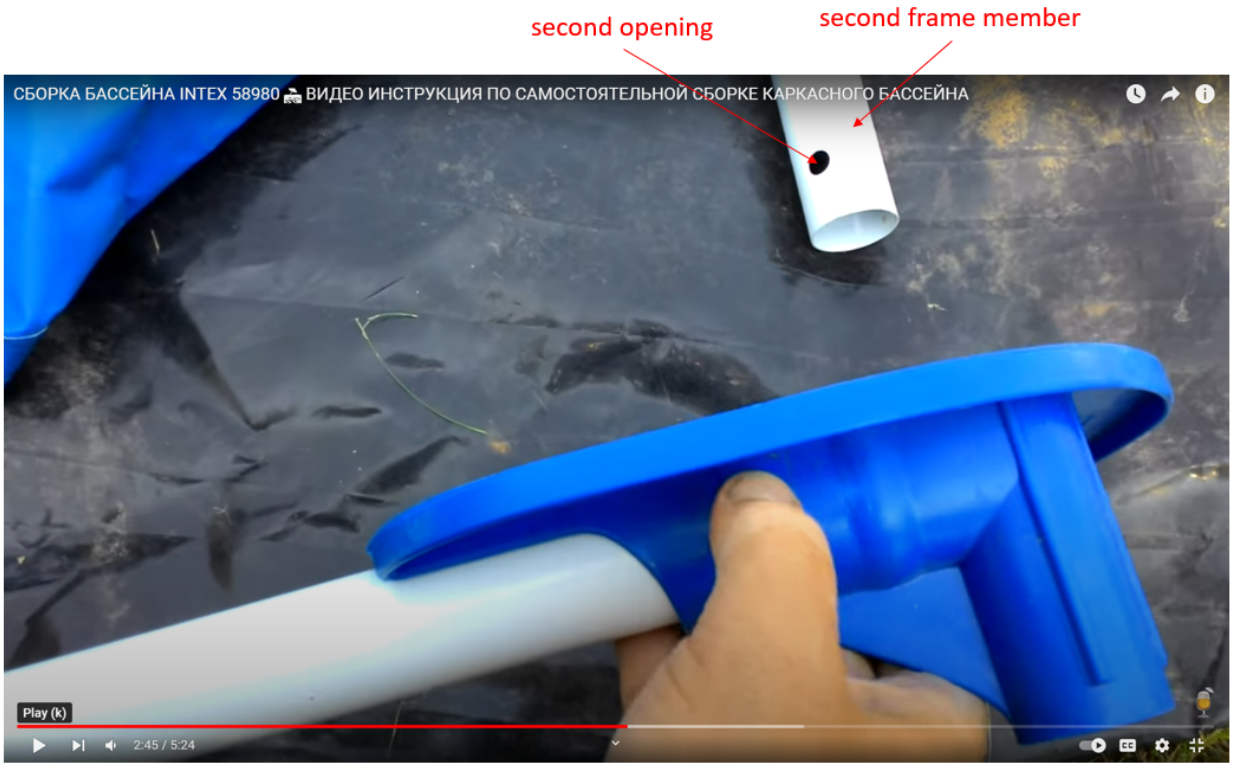



EX1022, p.5 (annotated); EX1002, ¶77

These horizontal beams have "pre-drilled holes" (openings) for pins (6) to connect the beams to a corner joint (5). The videos below similarly show the openings in the beams of the Intex Pool.




EX1023 at 2:09




EX1023 at 2:45

The Intex Pool therefore discloses a first frame member including a first opening, and a second frame member including a second opening. EX1002, ¶¶75-79.

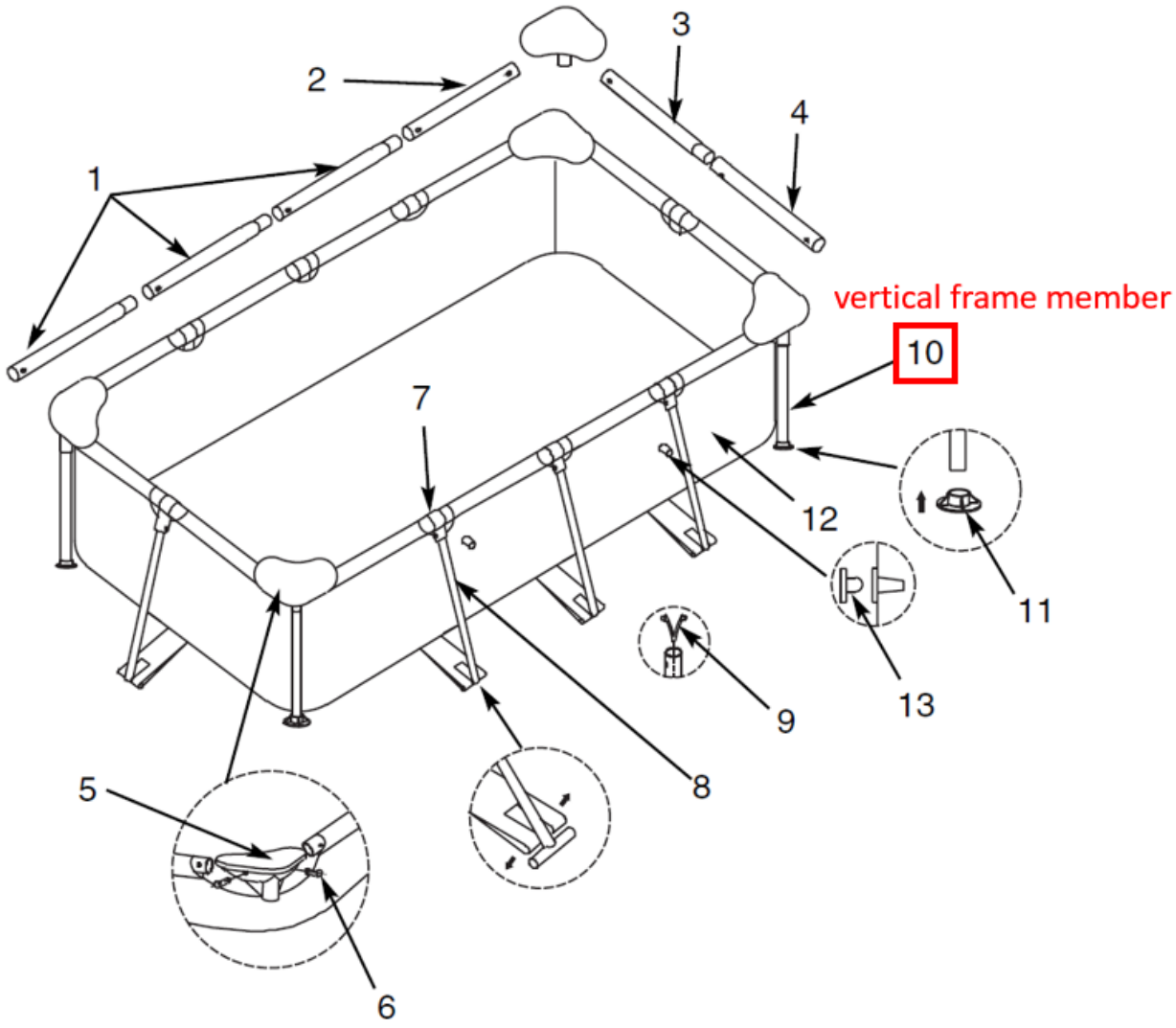
### 3. Element [1.3]

The Intex Pool has several vertical supports, including four "VERTICAL CORNER LEGS" at each corner of the Intex Pool.

| REF. NO. | DESCRIPTION | 86-5/8" x 59" x 23-5/8" (220cm x 150cm x 60cm) | 102-1/2" x 63" x 25-5/8" (260cm x 160cm x 65cm) | 118" x 78-3/4" x 29-1/2" (300cm x 200cm x 75cm) | 177-1/4" x 86-5/8" x 29-1/2" (450cm x 220cm x 75cm) |
|---|---|---|---|---|---|
| | | SPARE PART NO. | | | |
| 10 | VERTICAL CORNER LEG | 10628 | 10557 | 10563 | 10563 |

EX1022, p.6

The Owner's Manual identifies the "VERTICAL CORNER LEGS" as Ref. No. 10 which are illustrated in the figure below.




EX1022, p.5

The video screen shot below further illustrates the vertical legs of the Intex Pool.




EX1025 at 0:05

The Intex Pool thus meets Element [1.3]. EX1002, ¶¶80-82.

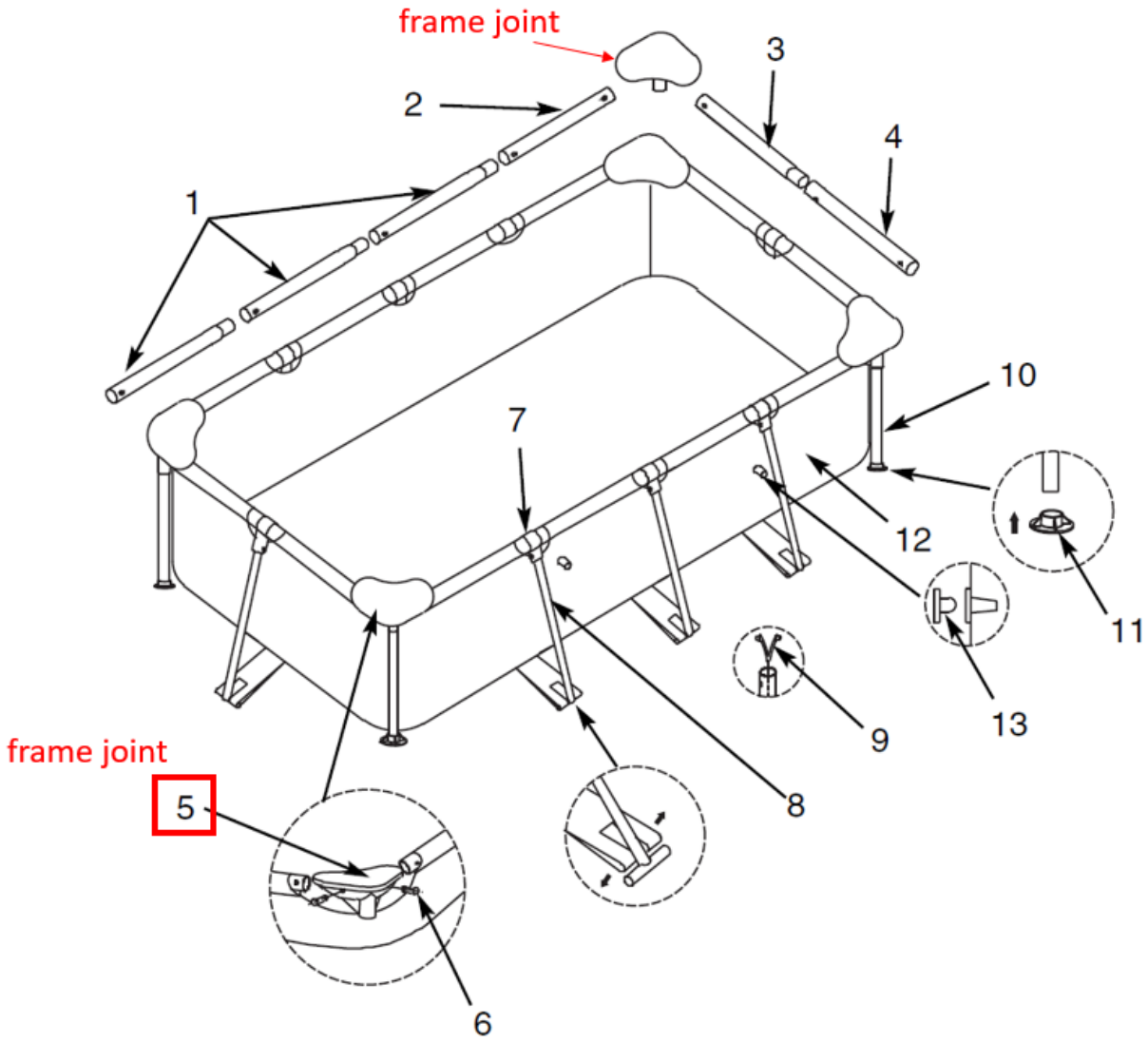
**4. Element [1.4]**

The Intex Pool has a "CORNER JOINT" which is identified as Ref. No. 5 in the Owner's Manual at each corner.

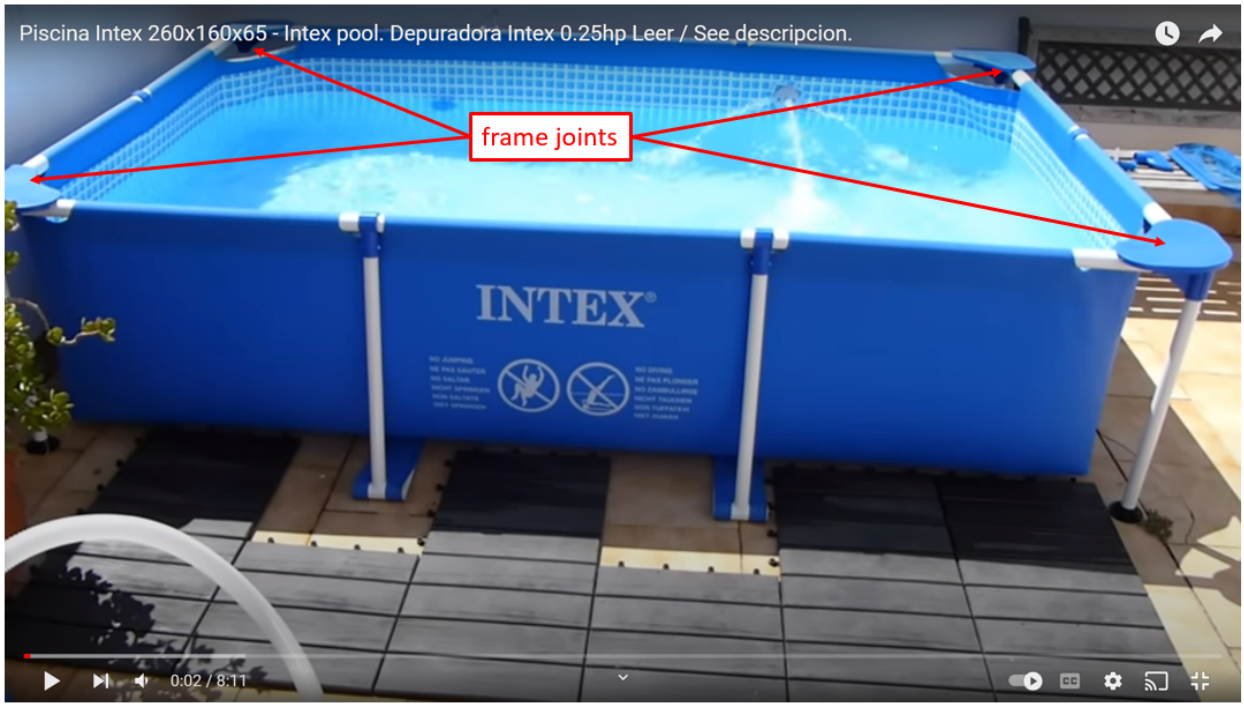
| REF. NO. | DESCRIPTION | 86-5/8" x 59" x 23-5/8" (220cm x 150cm x 60cm) | 102-1/2" x 63" x 25-5/8" (260cm x 160cm x 65cm) | 118" x 78-3/4" x 29-1/2" (300cm x 200cm x 75cm) | 177-1/4" x 86-5/8" x 29-1/2" (450cm x 220cm x 75cm) |
|---|---|---|---|---|---|
| | | SPARE PART NO. | | | |
| 1 | HORIZONTAL BEAM (A) | 10947 | 10948 | 10949 | 10951 |
| 2 | HORIZONTAL BEAM (B) | 10952 | 10953 | 10954 | 10956 |
| 3 | HORIZONTAL BEAM (C) | 10947 | 10958 | 10959 | 10961 |
| 4 | HORIZONTAL BEAM (D) | 10952 | 10963 | 10964 | 10966 |
| 5 | CORNER JOINT (WITH CORNER SEAT) | 10573 | 10573 | 10573 | 10573 |

EX1022, p.6

As shown below, each one of the corner joints (5) connect the first and second horizontal frame members (2, 3) to a vertical frame member (10).




EX1022, p.5



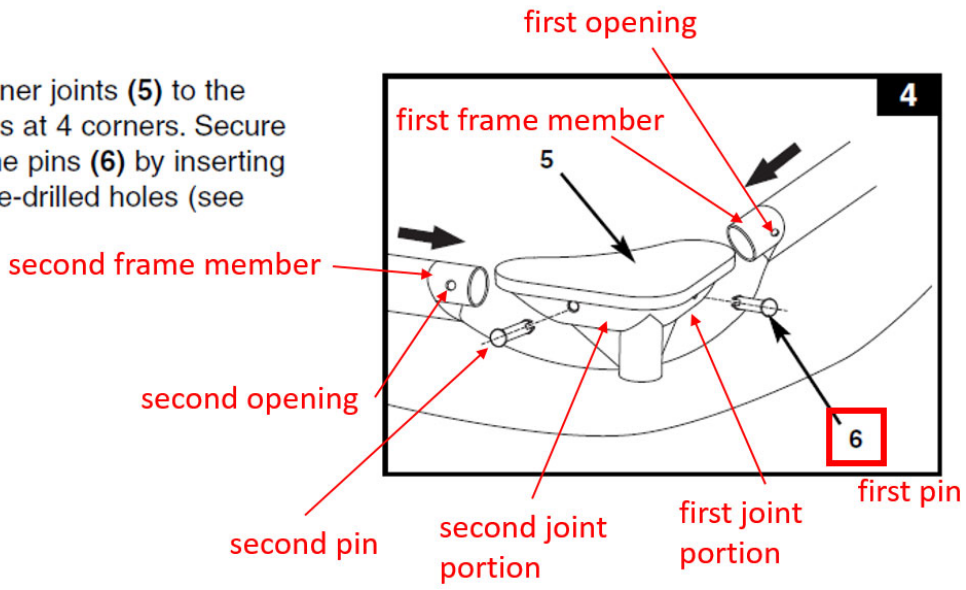

EX1023 at 0:02

The Intex Pool therefore discloses a frame joint. EX1002, ¶¶83-85.

**5. Elements [1.5] and [1.6]**

Each "corner joint" (5) of the Intex Pool has first and second joint portions that receive the two "horizontal beams" (2 and 3) respectively. Once the horizontal beams (2 and 3) are inserted into the first and second joint portions of the corner joint (5), pins (6) are inserted into the predrilled holes to couple and connect each horizontal beam to the corner joint (5) as is shown by the figure from the Owner's Manual below.

**4.** Connect the corner joints **(5)** to the horizontal beams at 4 corners. Secure the joints with the pins **(6)** by inserting them into the pre-drilled holes (see drawing 4).

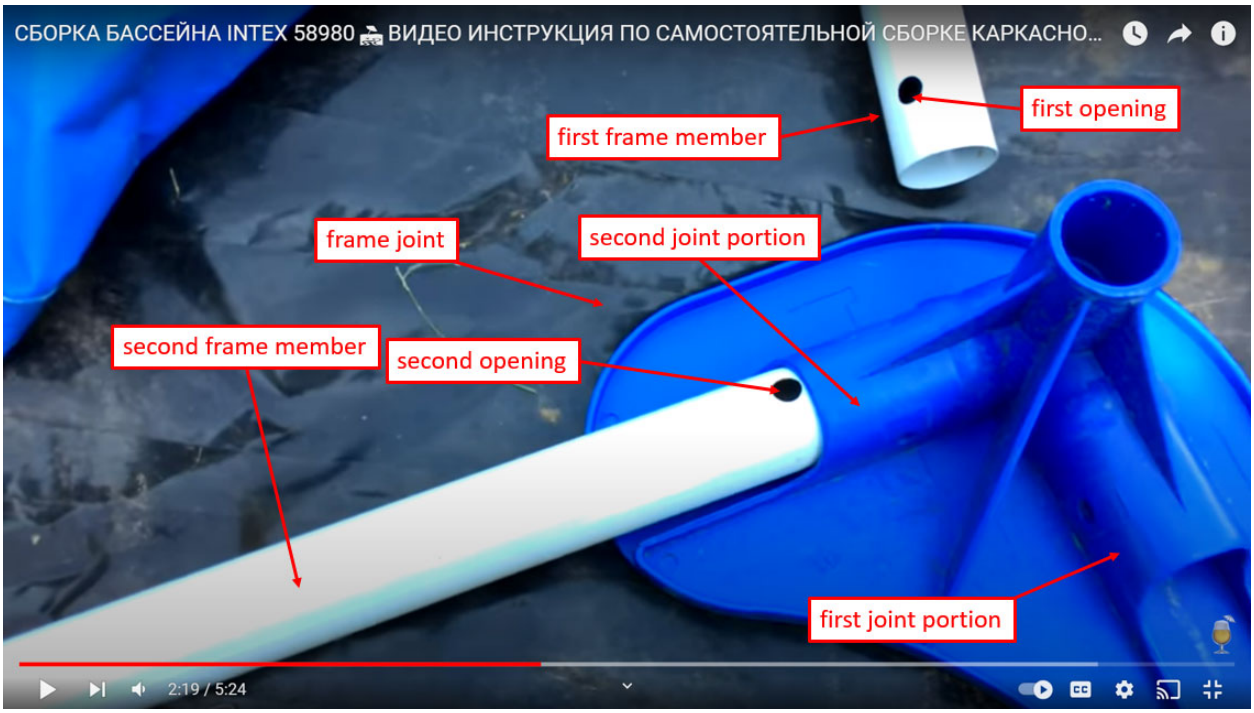



EX1022, p.9

| REF. NO. | DESCRIPTION | 86-5/8" x 59" x 23-5/8" (220cm x 150cm x 60cm) | 102-1/2" x 63" x 25-5/8" (260cm x 160cm x 65cm) | 118" x 78-3/4" x 29-1/2" (300cm x 200cm x 75cm) | 177-1/4" x 86-5/8" x 29-1/2" (450cm x 220cm x 75cm) |
|---|---|---|---|---|---|
| | | SPARE PART NO. | | | |
| 6 | PIN (WITH 2 EXTRA) | 10574 | 10574 | 10574 | 10574 |

EX1022, p.6

The process of connecting one horizontal beam to the first joint portion is repeated to connect the second horizontal beam to the second joint portion.




EX1023 at 2:19




EX1023 at 2:39




EX1023 at 2:46

The Intex Pool therefore teaches and embodies Elements [1.5] and [1.6]. EX1002, ¶¶86-88.

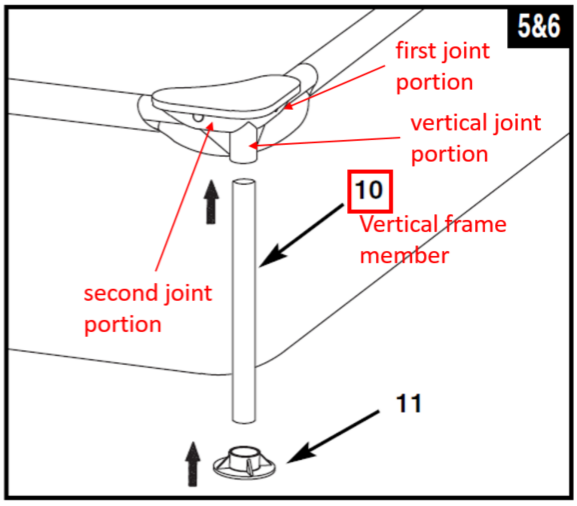
### 6. Element [1.7]

Each "corner joint" (5) of the Intex Pool also has a receptacle (vertical joint portion) that receives the "vertical corner leg" (10). The Owner's Manual teaches connecting the vertical corner leg (10) to the corner joint (5) as follows:

5. Connect the vertical corner legs **(10)** to the corner top rail joints **(5)** (see drawings 5 & 6).

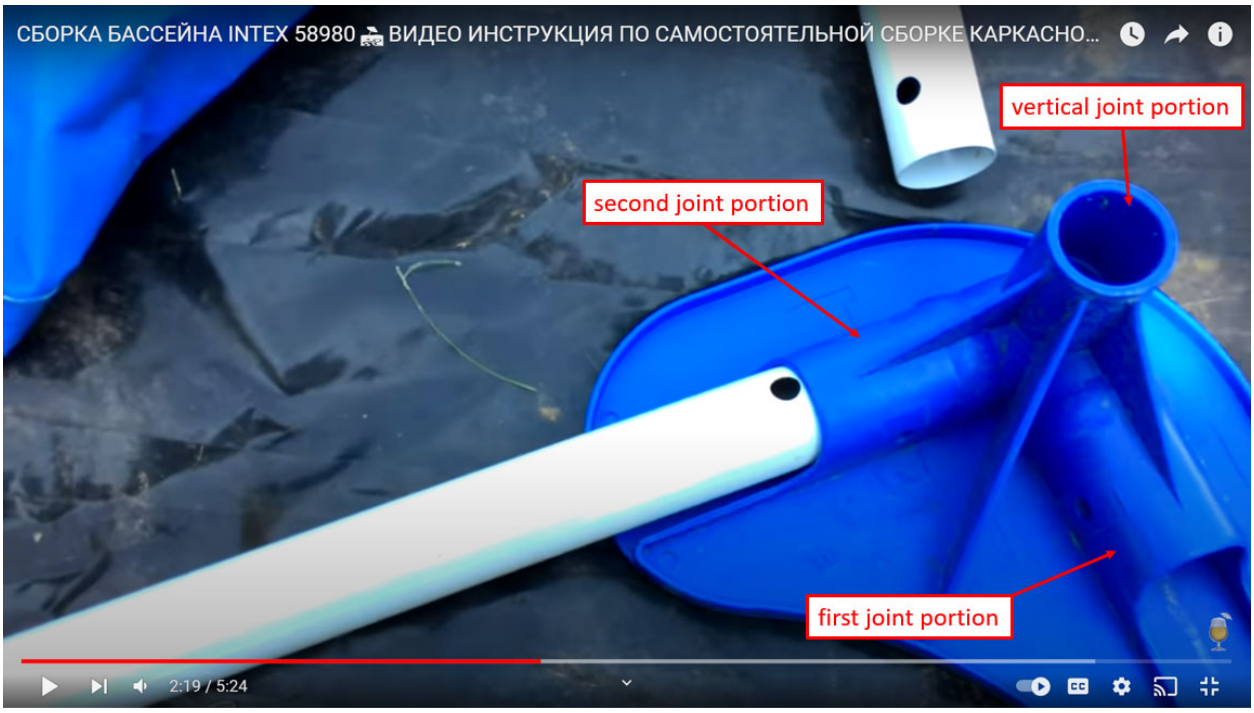
6. Attached the leg's end cap **(11)** to the bottom of the vertical legs **(10)** (see drawings 5 & 6).

.




EX1022, p.9

As shown above and below, the vertical joint portion is integrally formed with the first and second joint portions such that they are part of a single connected structure.




EX1023 at 2:19

The Intex Pool therefore discloses a vertical joint portion connected to the first and second joint portions and configured to couple to the vertical frame member. EX1002, ¶¶89-91.

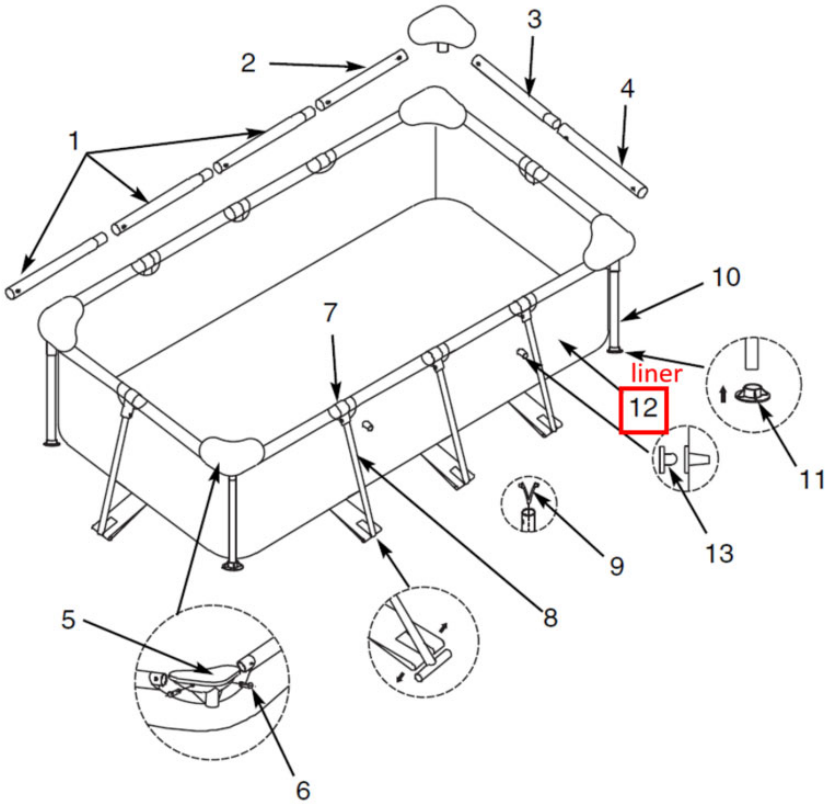
### 7. Element [1.8]

The Intex Pool has a liner. The Owner's Manual (excerpt below) lists Ref. No. 12 as a "POOL LINER."

| REF. NO. | DESCRIPTION | 86-5/8" x 59" x 23-5/8" (220cm x 150cm x 60cm) | 102-1/2" x 63" x 25-5/8" (260cm x 160cm x 65cm) | 118" x 78-3/4" x 29-1/2" (300cm x 200cm x 75cm) | 177-1/4" x 86-5/8" x 29-1/2" (450cm x 220cm x 75cm) |
|---|---|---|---|---|---|
| | | SPARE PART NO. | | | |
| 12 | POOL LINER (DRAIN VALVE CAP INCLUDED) | 10942 | 10943 | 10944 | 11218 |

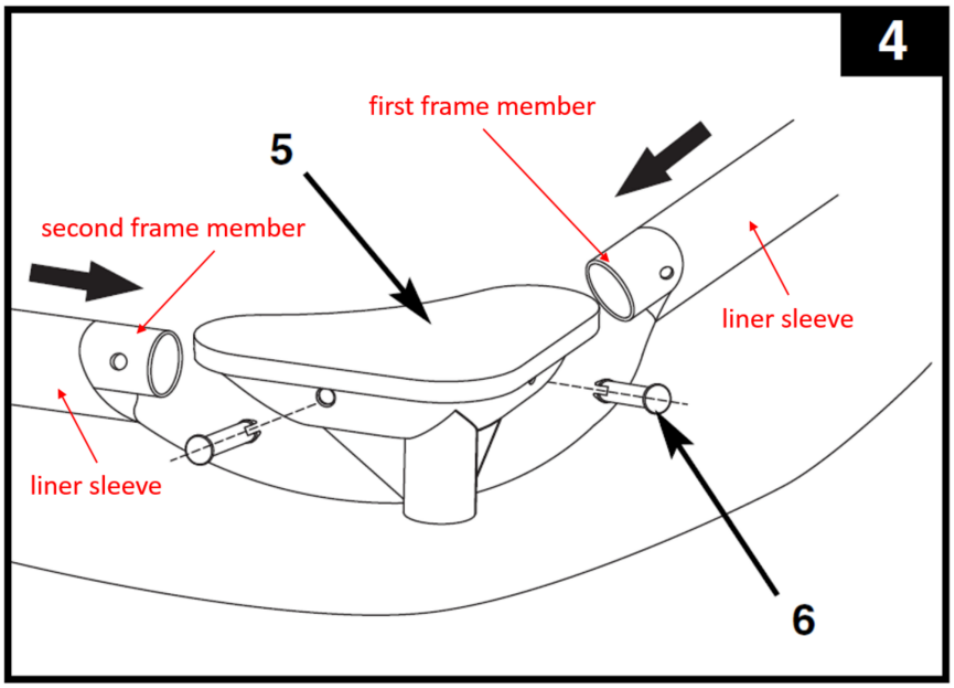
EX1022, p. 6

The liner (12) is shown in the figure from the Owner's Manual below.

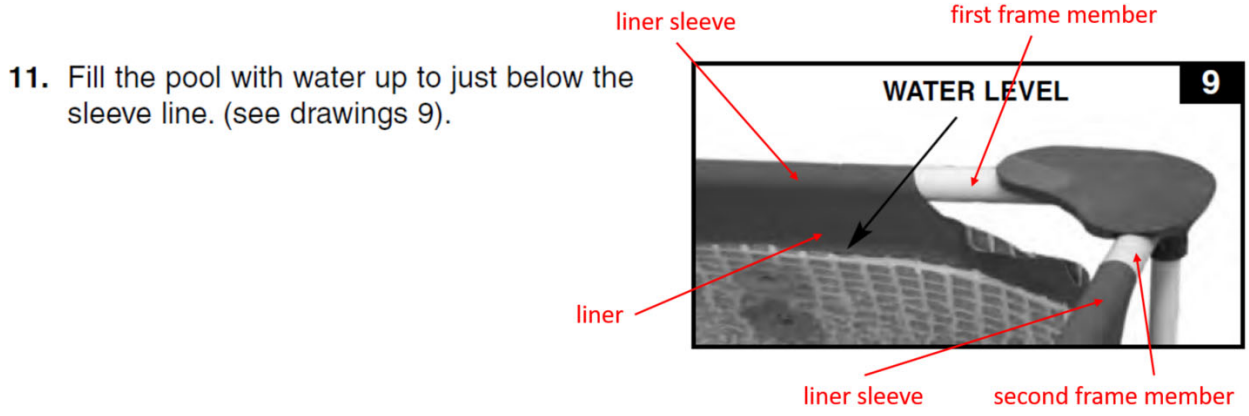



EX1022, p.5

The horizontal beams (Ref. Nos. 1-4) are inserted into sleeves of the liner. The sleeves of the liner thus surround the first and second horizontal beams.

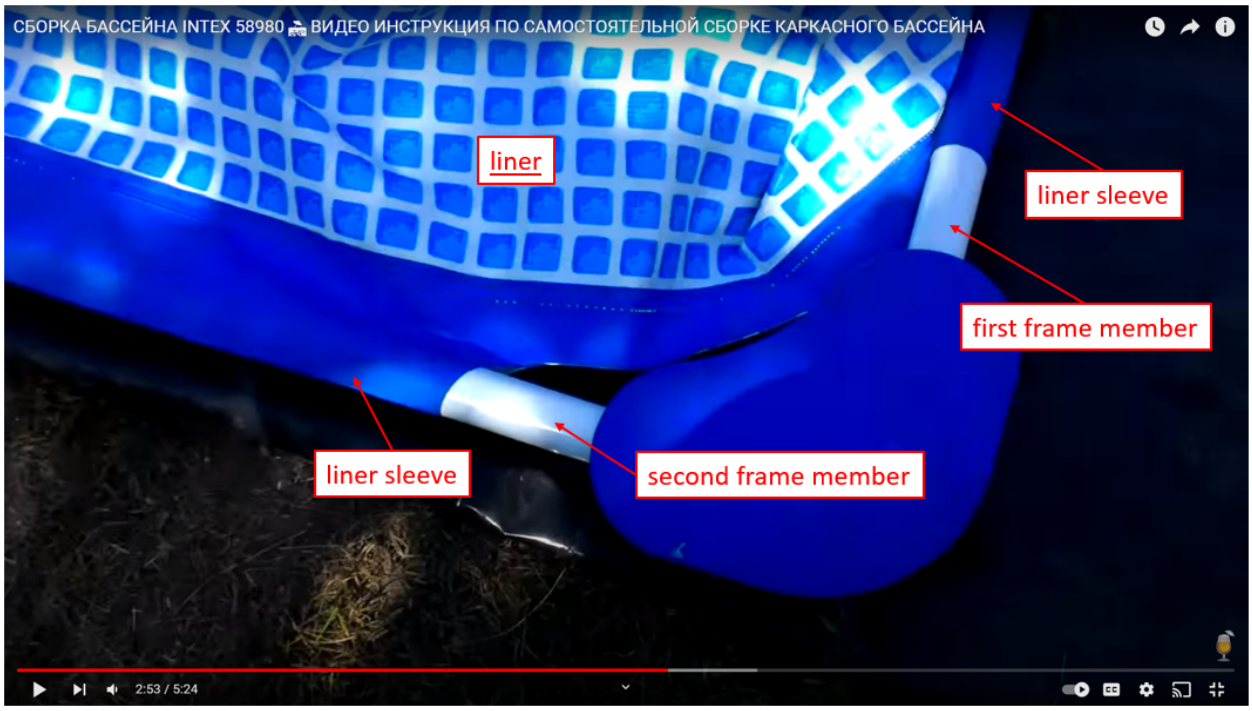



EX1022, p.9 (annotated)




EX1022, p.10 (annotated)

Once the Intex Pool is assembled, the sleeves of the liner surround (are positioned around) the first and second frame members as is shown in the video below.




EX1023 at 2:53

The Intex Pool therefore discloses Element [1.8]. EX1002, ¶¶92-94.

**8. Element [1.9]**

As explained above in Ground 1, Claim 1 is indefinite because the Width Limitation of Element [1.9] "fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus,* 572 U.S. at 901 (2014). However, even if the Width Limitation *could* be defined, the Intex Pool discloses Element [1.9] under various of its possible interpretations. EX1002, ¶96.

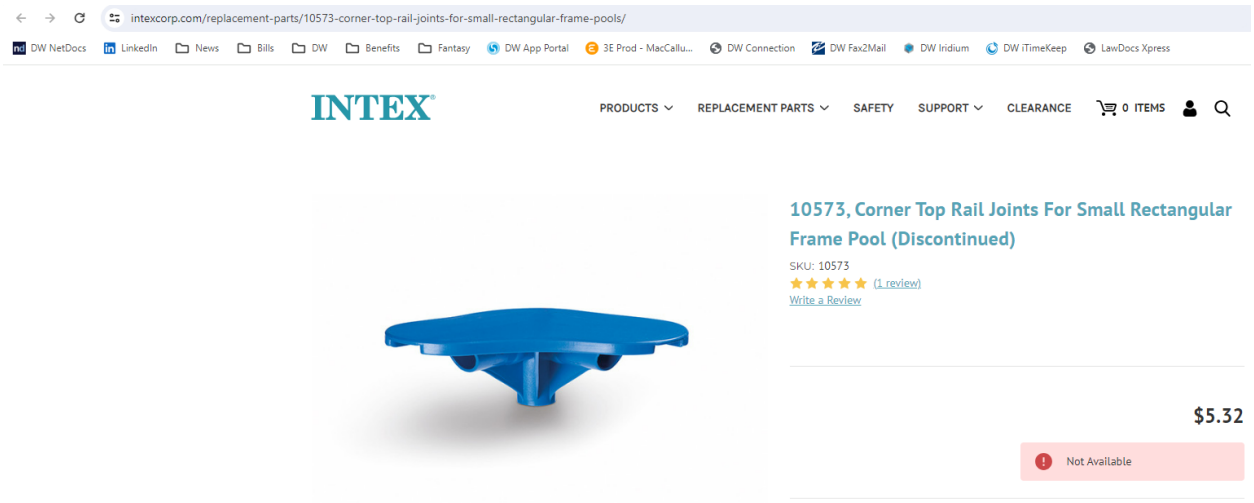
Specifically, Dr. Cameron has inspected and measured various dimensions of two separate physical "corner joints" from the Intex Pool purchased online and confirms it satisfies the Width Limitation of Element [1.9]. EX1002, ¶97. One physical corner joint she inspected was from a physical Intex Pool. *Id.*; EX1032.

The Owner's Manual that came with that physical pool identifies the part number of the corner joint as 10573. EX1002, ¶97. This matches the Owner's Manuals EX1021-1022, which identify the "corner joint" as part number 10573 (as explained in Element [1.4] above):

| REF. NO. | DESCRIPTION | 86-5/8" x 59" x 23-5/8" (220cm x 150cm x 60cm) | 102-1/2" x 63" x 25-5/8" (260cm x 160cm x 65cm) | 118" x 78-3/4" x 29-1/2" (300cm x 200cm x 75cm) | 177-1/4" x 86-5/8" x 29-1/2" (450cm x 220cm x 75cm) |
|---|---|---|---|---|---|
| | | SPARE PART NO. | | | |
| 1 | HORIZONTAL BEAM (A) | 10947 | 10948 | 10949 | 10951 |
| 2 | HORIZONTAL BEAM (B) | 10952 | 10953 | 10954 | 10956 |
| 3 | HORIZONTAL BEAM (C) | 10947 | 10958 | 10959 | 10961 |
| 4 | HORIZONTAL BEAM (D) | 10952 | 10963 | 10964 | 10966 |
| 5 | CORNER JOINT (WITH CORNER SEAT) | 10573 | 10573 | 10573 | 10573 |

EX1022, p.6 (annotated)

Intex has now discontinued and no longer sells part number 10573.[12] Instead, it identifies part no. 10573A as its "substitute part." EX1029.



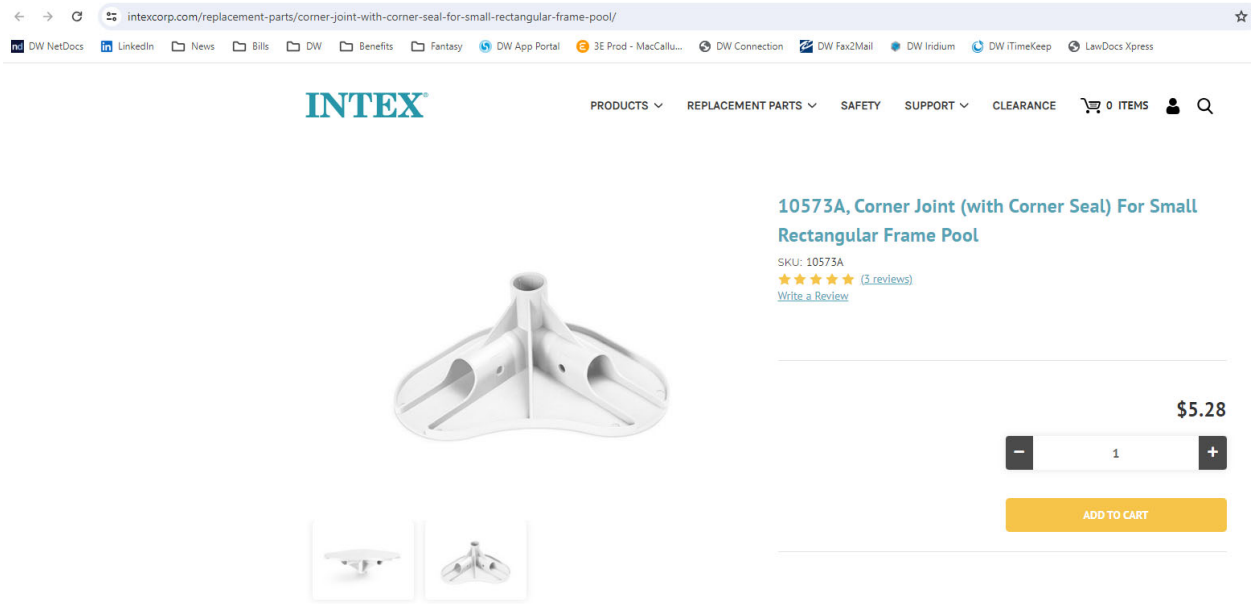

12 https://intexcorp.com/replacement-parts/10573-corner-top-rail-joints-for-small-rectangular-frame-pools/

**Substitute Part List**

| SKU | Product Name |
|---|---|
| 10573A | Corner Joint (with Corner Seal) For Small Rectangular Frame Pool |

EX1029

The substitute part no. 10573A is structurally identical to the original part no. 10573. EX1002, ¶¶98-99.




EX1030

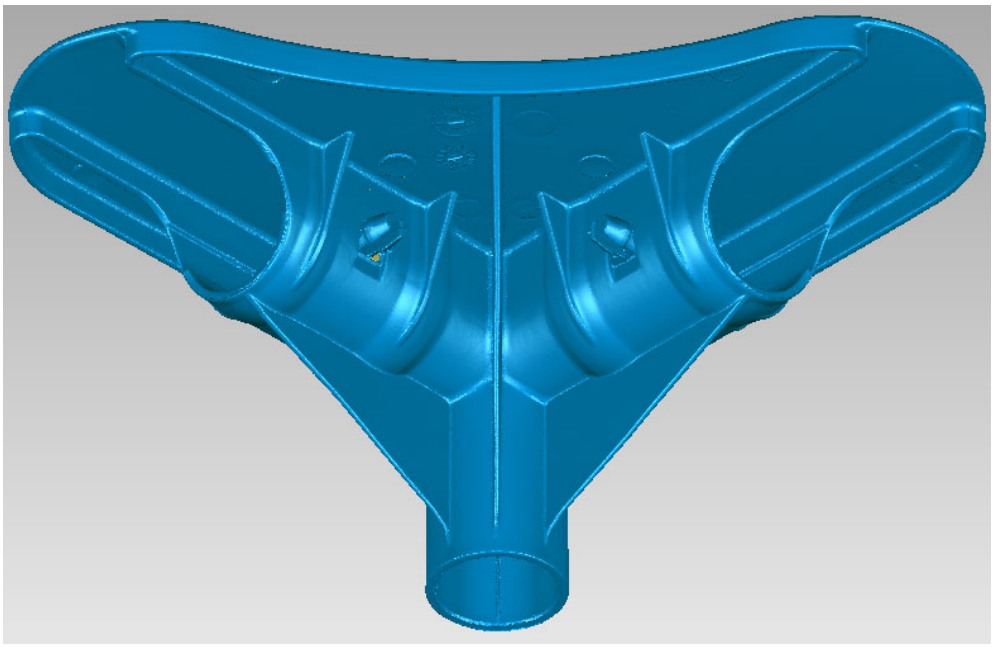
The only difference between original part number 10573 and substitute part number 10573A is a change in color. EX1002, ¶99. Both part numbers 10573 and 10573A are listed as compatible with the Intex Pool. *Id*; EX1029-1030. Dr. Cameron also chatted with an Intex representative who confirmed that part numbers 10573 and 10573A are unchanged with the only difference being a color change

(*i.e.*, from blue to white). EX1027. Dr. Cameron confirmed the same with her own measurements. EX1002, ¶105.

Dr. Cameron has also received physical samples of the pins (part number 10574) described in Elements [1.5]-[1.6], which are the same as in the physical Intex Pool she inspected. EX1002, ¶¶99-100.

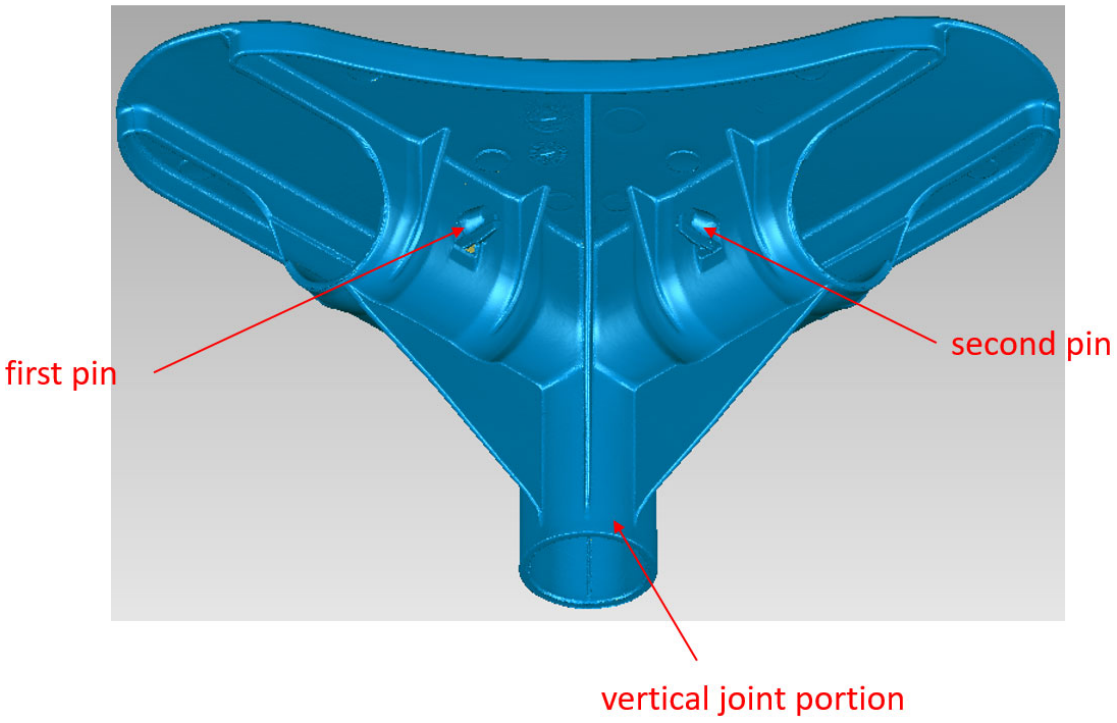
Dr. Cameron performed various measurements on these physical parts with a HandySCAN BLACK™ Elite, a high-precision three-dimensional laser scanner designed for professional use in metrology. EX1002, ¶101. This type of 3D scanner is typical in Dr. Cameron's field, allowing various dimensions of a scanned physical part to be determined with an accuracy of up to 0.025 mm. *Id*. After scanning, the geometry of the physical parts was exported to Geomagic Control, which is a comprehensive 3D inspection and metrology software. *Id*. This software allows Dr. Cameron to measure the linear distance between any two locations on a 3D scanned part. *Id*.

An image of the Intex Pool's corner joint (part number 10573) with pins inserted (part number 10574) as scanned by the 3D scanner part is shown below:



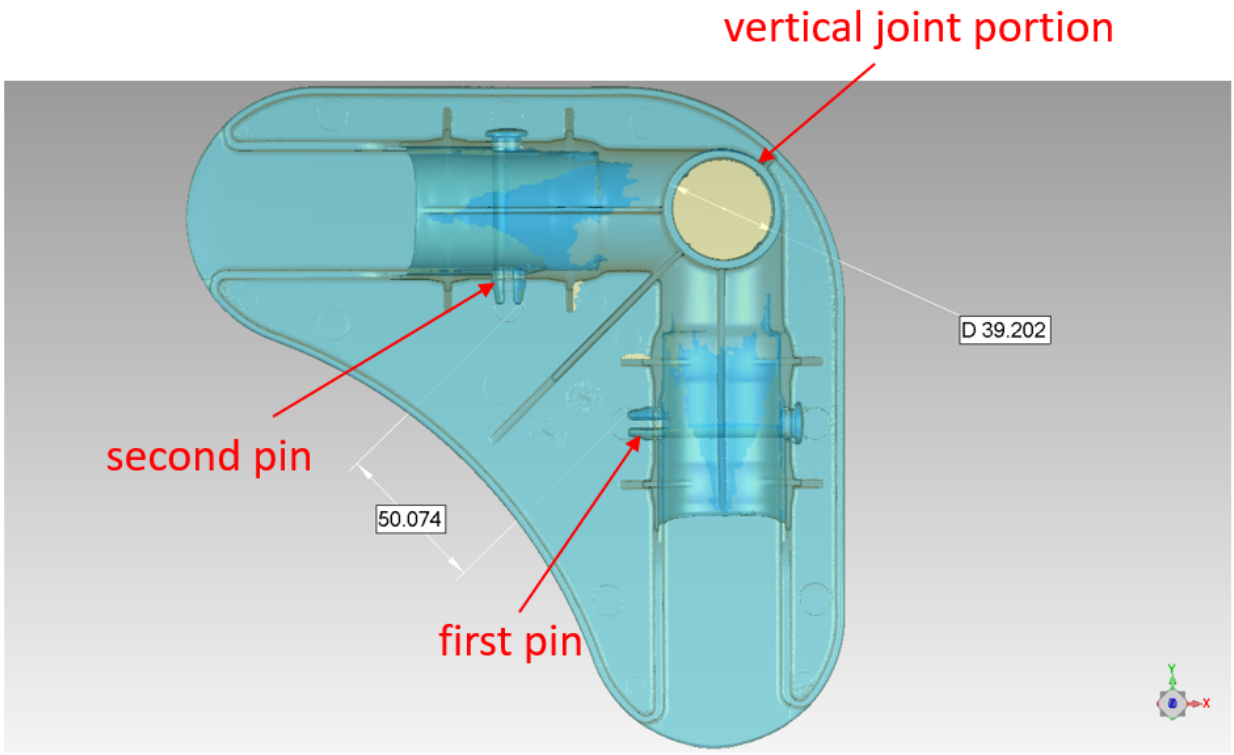
EX1002, ¶102

For clarity, the same image is provided below with labels for the first and second pins, and the vertical joint portion:




EX1002, ¶103

Using the software, Dr. Cameron measured the width of the vertical joint portion of the corner joint at 39.2mm, as shown in the image below. EX1002, ¶104. Dr. Cameron also measured the "width between the first and second pins" by determining the distance between the surfaces of the pins that face one another (innermost surfaces closest to one another). As show below, this pin width distance is 50.1mm.[13] EX1002, ¶104. She measured this distance at the innermost ends of the pins. *Id*.

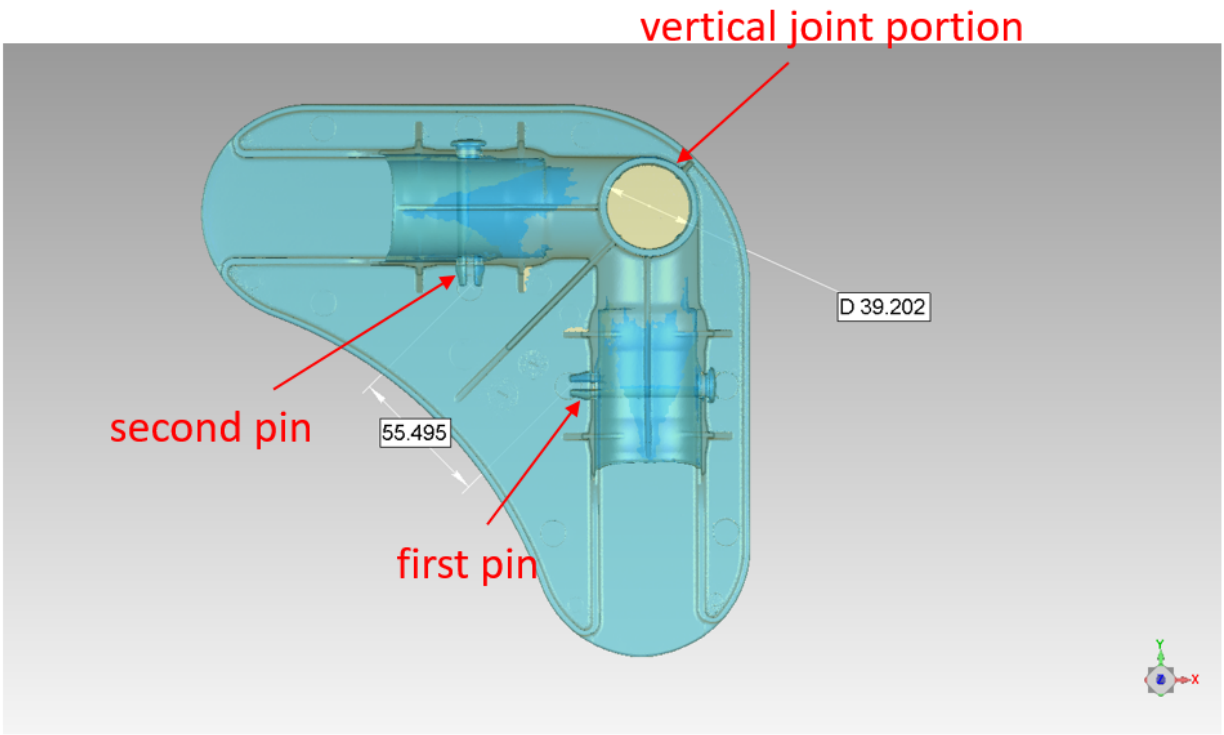



EX1002, ¶104

[13] The measurements of the replacement sample (part number 10573A) are the same as those for part number 10573. EX1002, ¶105.

Therefore, the Intex Pool's corner joint has a width of the vertical joint portion that accounts for at least 50% (namely 78.2% (39.2mm / 50.1mm)) of the width between the first and second pins. EX1002, ¶106.

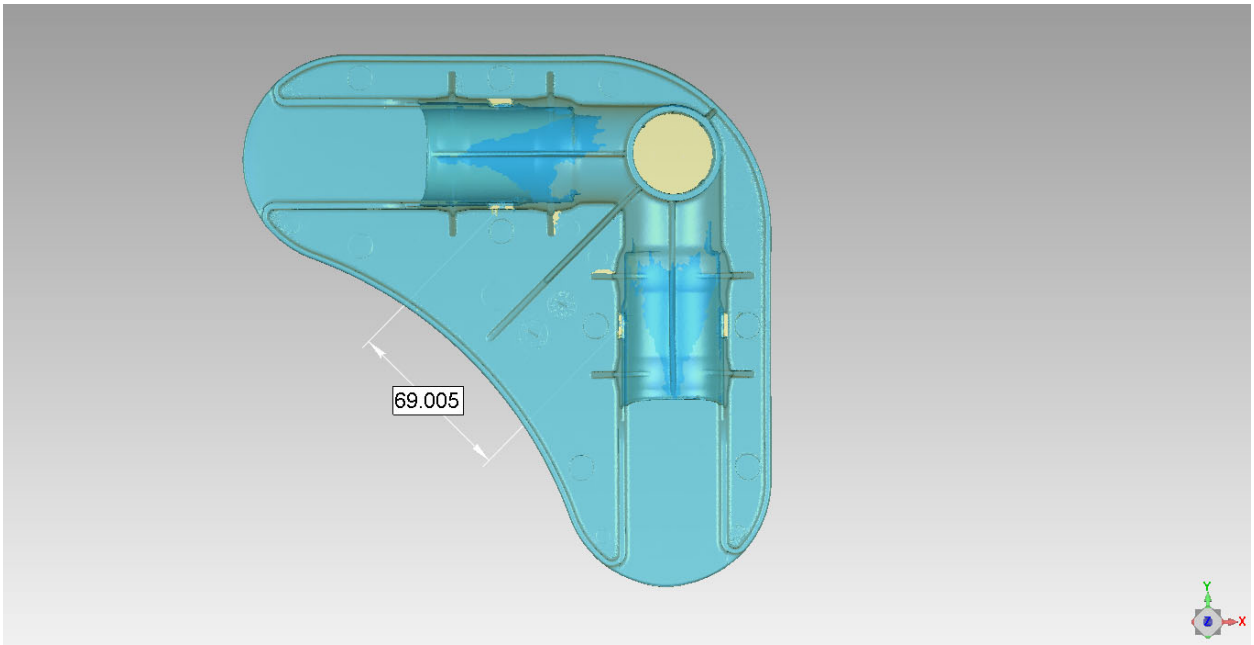
Dr. Cameron also measured the "width between the first and second pins" by determining the distance between the center axis of the pins (instead of the surfaces of the pins that face one another). EX1002, ¶107. This distance is 55.5mm as shown below. Again, this distance was measured at the innermost ends of the pins. *Id*.




EX1002, ¶107

Thus, even under this meaning of the Width Limitation, the width of the vertical joint portion accounts for at least 50% (namely, 70.6% (39.3mm / 55.5mm)) of the width between the first and second pins. EX1002, ¶108.

Dr. Cameron also measured the Intex Pool's corner joint without the pins. In particular, she measured the width between the centers of the pinholes – as Intex did during prosecution – to be 69.0mm as shown below.




EX1002, ¶109

Therefore, even under this meaning of the Width Limitation, the width of the vertical joint portion accounts for at least 50% (namely, 56.8% (39.2mm / 69mm)) of the width between the first and second pins. EX1002, ¶110.

The Intex Pool therefore discloses wherein a width of the vertical joint portion accounts for at least 50% of a width between the first and second pins (under various of its meanings) and thus meets Element [1.9]. EX1002, ¶¶95-110.

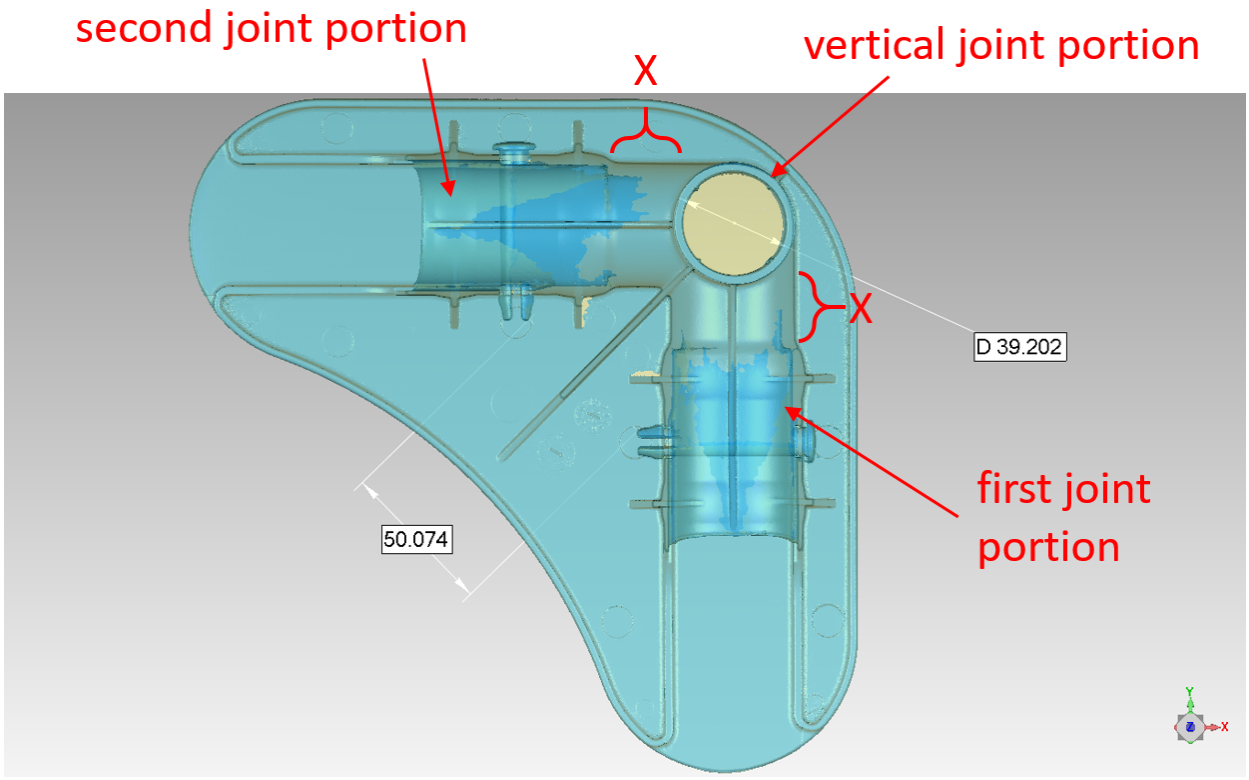
To the extent the Intex Pool does not teach or disclose Element [1.9], this limitation would have been obvious to a POSA. EX1002, ¶111. The location of the

pinholes (and thus the pins) is simply a matter of design choice. *Id*. The location of the pinholes and thus the pins does not affect the assembly or strength of the connection, so long as a sufficient amount of the horizontal frame members is received by the corner joint. *Id*. So long as the corner joint provides sufficient strength, whether the pinholes are located closer or further away from the vertical frame joint portion does not impact the structural integrity of the pool. *Id*. "Where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device." MPEP, 2144.04(IV)(A), citing *Gardner v. TEC Syst., Inc.,* 725 F.2d 1338 (Fed. Cir. 1984).

Indeed, the '512 Patent does not identify or describe any significance or criticality whatsoever to the claimed ratio of "at least 50%".

It would also have been obvious to design the corner joint of the Intex Pool to be smaller in order to reduce the amount of material needed for formation of the part, thereby reducing material costs. EX1002, ¶112. Reducing costs is a ubiquitous design incentive in almost any field, including consumer goods and frame pools. *Id*. In order to reduce the size of the Intex Pool's corner piece (part no. 10573/10573A), a POSA would have immediately considered reducing the overall width of the corner piece. *Id*. This would involve shortening the horizontal joint portions while

maintaining the same amount (or a sufficient amount) of the horizontal frame members received by the corner joint (*e.g.*, maintaining the same pinhole locations on the horizontal frame members). *Id.* This would involve bringing the pin locations closer and closer to the vertical joint portion. For example, referring to the image below, the regions labeled "X" are between vertical joint portion and the ends of the horizontal frame members within the horizontal joint portion. *Id.* Reducing the size of this area as much as possible can shrink the size of the corner joint without impacting the overall strength of the corner joint:




EX1002, ¶112

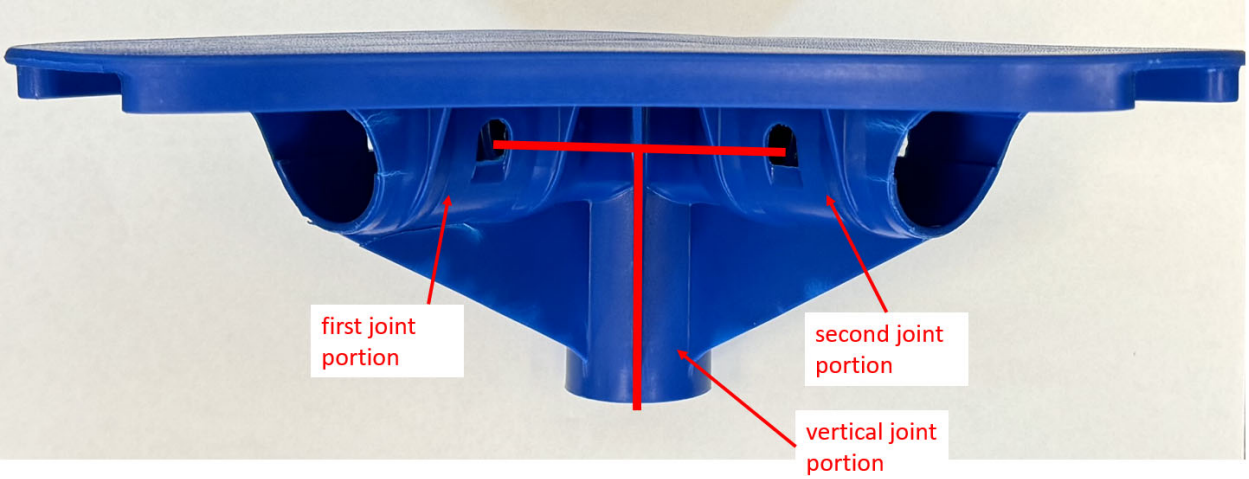
Shortening these regions (labeled "X") would result in less material being used for the corner piece without requiring a change to the horizontal frame members

or vertical frame members. *Id*. Through routine experimentation to use as little material as possible without compromising structural integrity of the corner piece, a POSA would naturally arrive at a corner piece that meets the limitations of Element [1.9]. EX1002, ¶¶112-113. This is also supported by the corner joint of the Lee reference (discussed above), which discloses a frame joint with a Width Limitation measurement of 57%. *See* Section VII(A); EX1002, ¶114.

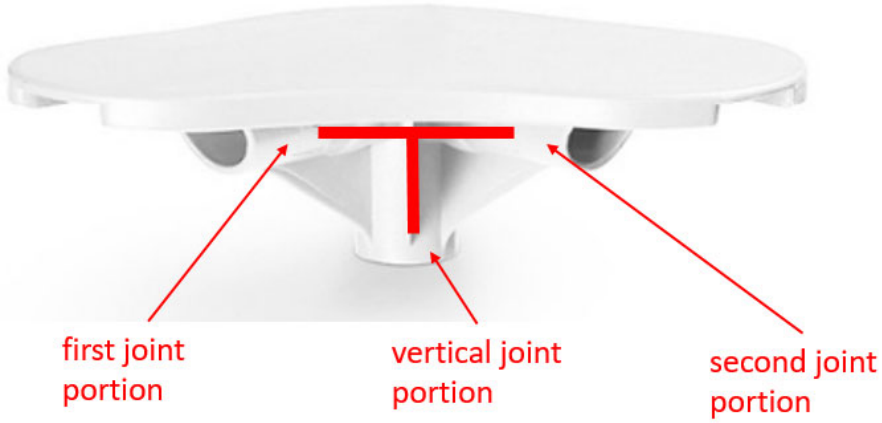
The limitations of Element [1.9] are disclosed by the Intex Pool, or alternatively, would have been an obvious alteration of the Intex Pool. EX1002, ¶115.

**B. Claim 9**

Claim 9 depends from Claim 1 and requires that the vertical joint portion is centered between the first and second joint portions to form a T-shaped frame joint. The Intex Pool has a corner joint (part no. 10573/10573A) with a vertical joint portion centered between the first and second joint portions to form a T-shape shown by the red lines below. EX1002, ¶118.




EX1002, ¶118



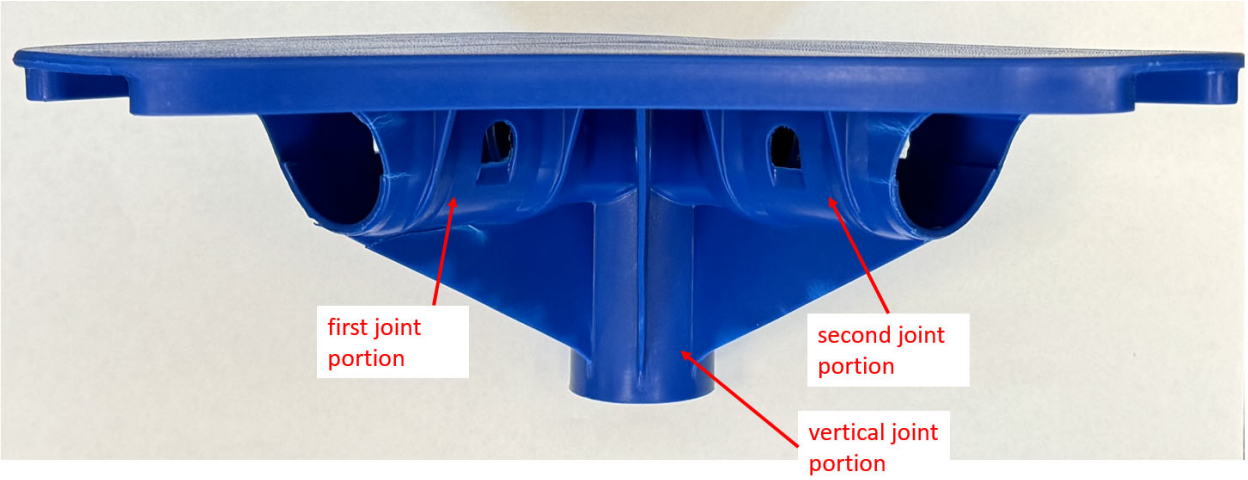

EX1002, ¶118

In inspecting the Intex Pool's corner joint, Dr. Cameron measured and determined that the vertical joint portion is positioned in the middle between the ends of the first and second joint portions. EX1002, ¶117. In particular, she measured the distance from the center of the vertical joint portion to each of the ends of the first and second joint portions and found them to be identical. *Id*. This creates a T-shaped frame joint that connects the first frame member, the second frame member, and the vertical frame member as required by Claim 10. *Id*.

### C. Claim 11

Claim 11 depends from Claim 1 and requires the vertical joint portion to be integrally formed with the first and second joint portions as a single piece.

The '512 Patent states: "[w]ith respect to the T-shaped joint 10, in particular, the horizontal joint portions 1 and the vertical joint portion 2 may be integrally formed as a single piece of plastic." EX1001, 3:32-35. Similarly, Dr. Cameron has confirmed that the "corner joint" (part no. 10573/10573A) of the Intex Pool is a single plastic piece. EX1002, ¶120. Its vertical joint portion is therefore integrally formed with the first and second joint portions as a single plastic piece.



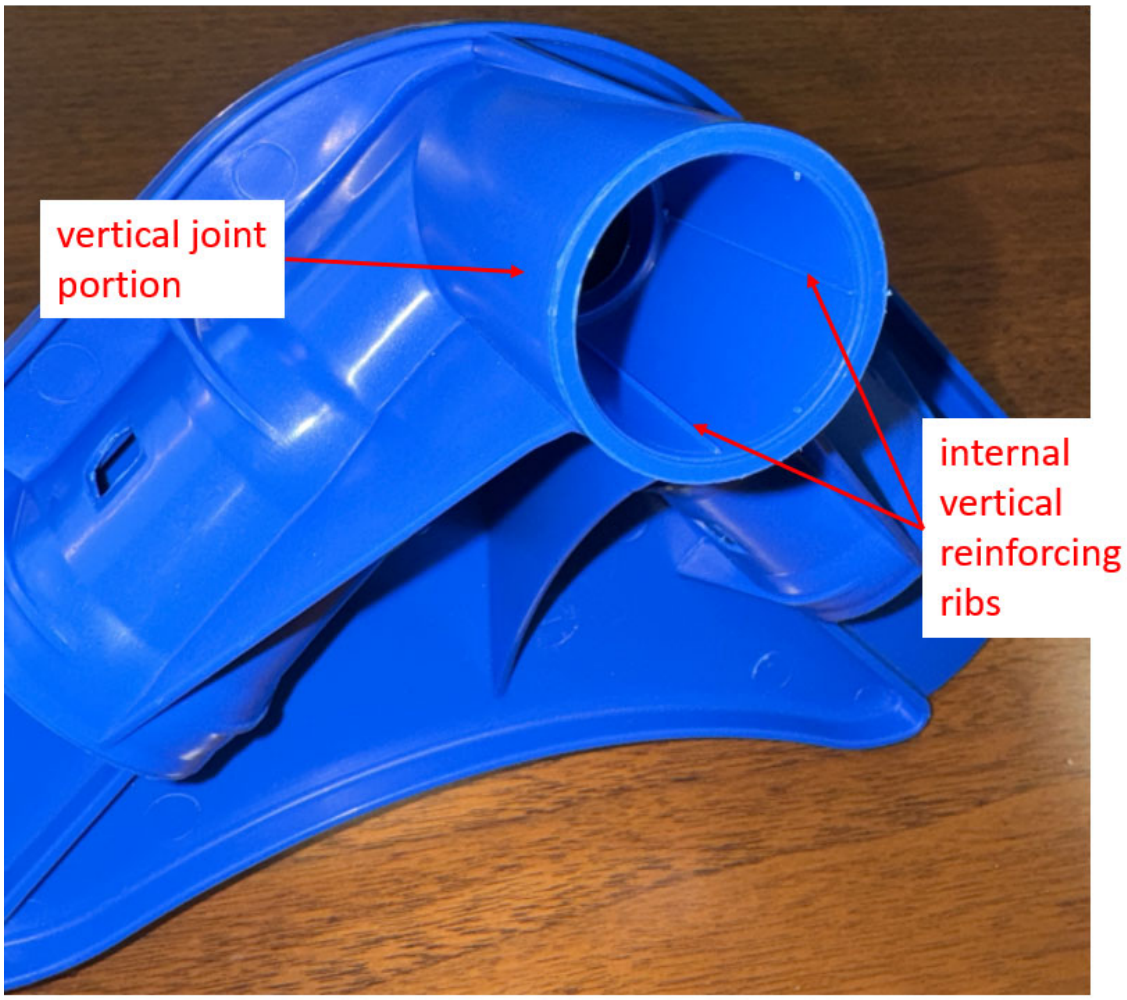

EX1002, ¶120

### D. Claim 12

Claim 12 depends from Claim 1 and requires the vertical joint portion to include "at least one internal vertical reinforcing rib." Regarding this term, the '512 specification teaches that the vertical joint portion "may include one or more internal

vertical reinforcing ribs to help support the base 41 within the T-shaped joint." EX1001, 4:46-48.

The "corner joint" (part no. 10573/10573A) of the Intex Pool has similar reinforcing ribs within the vertical joint portion, as shown below. As shown below, these ribs protrude radially inwardly toward the interior of the vertical joint portion to provide points of direct contact with the connecting vertical frame member, thereby supporting the vertical frame member and its connection with the corner joint. EX1002, ¶123. This allows the corner joint to provide the same levels of resistance with less material. *Id*. The ribs are configured to accommodate tolerance issues between the vertical joint portion and the connecting vertical support member. *Id*. The ribs also reinforce the connection between the corner joint and the vertical frame member by resisting rotation of the vertical frame member within the corner joint. *Id*. These ribs also extend vertically along the internal surface of the vertical joint portion, and are therefore "internal vertical reinforcing ribs." *Id*.

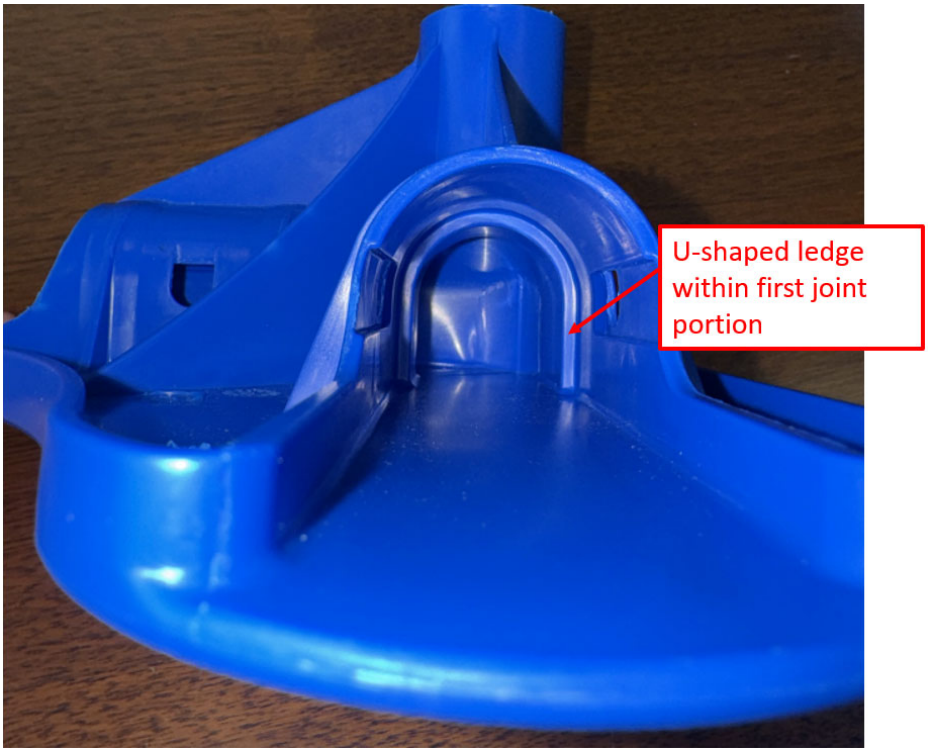


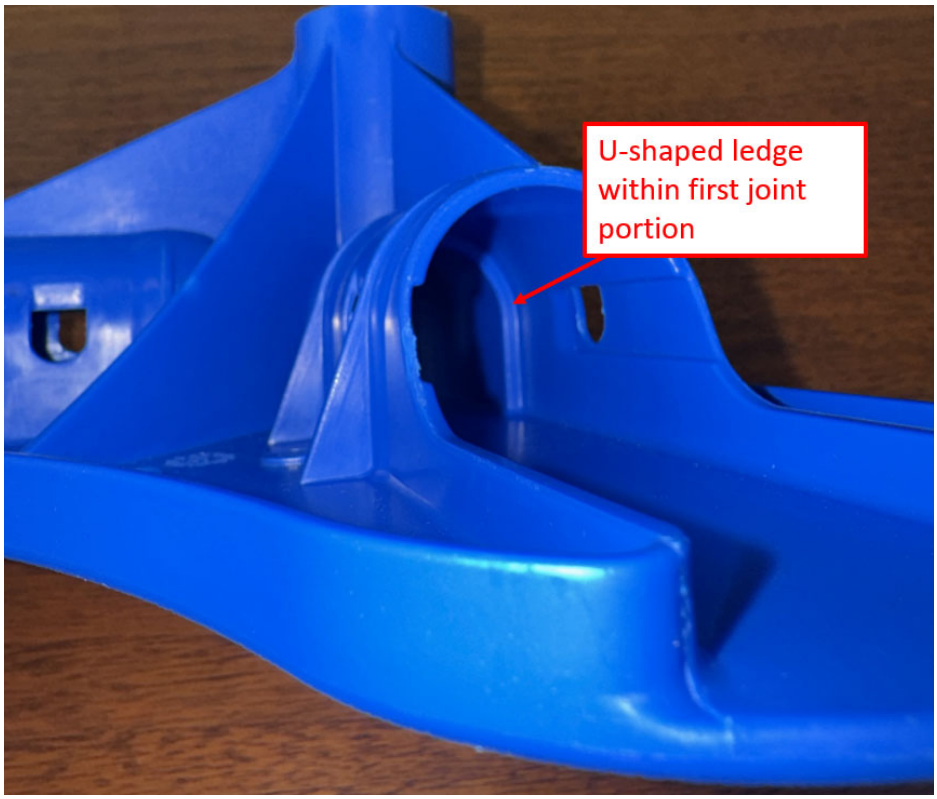

EX1002, ¶123

**E. Claim 13**

Claim 13 depends from Claim 1 and further requires the first and/or second joint portion of the frame joint to have "an internal reinforcing rib." Regarding this term, the '512 Patent specification teaches that an internal horizontal reinforcing rib 11 helps support the coupling assembly. EX1001, 4:14-17. This assures the pin 33 of the coupling assembly maintains alignment with the corresponding hole 35 in the frame joint. EX1002, ¶125

The "corner joint" (part no. 10573/10573A) of the Intex Pool has a reinforcing rib within each of the first and second joint portions, as shown below. This rib is a U-shaped ledge of raised material that reduces the internal diameter of the corner joint so as to abut the end of the horizontal frame member when it is inserted into the corner joint, preventing further insertion of the horizontal frame member and supporting the connection with the corner joint. The rib directly contacts the end of the horizontal frame member to maintain alignment between the pinhole of the horizontal frame member and the pinhole of the corner joint. The rib also extends horizontally (*e.g.*, in a direction parallel to the horizontal frame members, away from the camera in the first image below) along the internal surface of the horizontal joint portions and is therefore an "internal vertical reinforcing rib." EX1002, ¶126.






EX1002, ¶126

Alternatively, it would have been obvious to incorporate the internal vertical reinforcing ribs shown in Claim 12 into the first and second (horizontal) joint portions of the corner joint to provide reinforcement and support for the connection between the corner joint and the first and second (horizontal) frame members. EX1002, ¶127. As explained above regarding Claim 12, the internal vertical reinforcing ribs protrude radially inwardly toward the interior of the vertical joint portion, providing a point of direct contact with the frame member, and resisting rotation of the frame member. The ribs are configured to accommodate tolerance issues between the vertical joint portion and the connecting vertical support member.

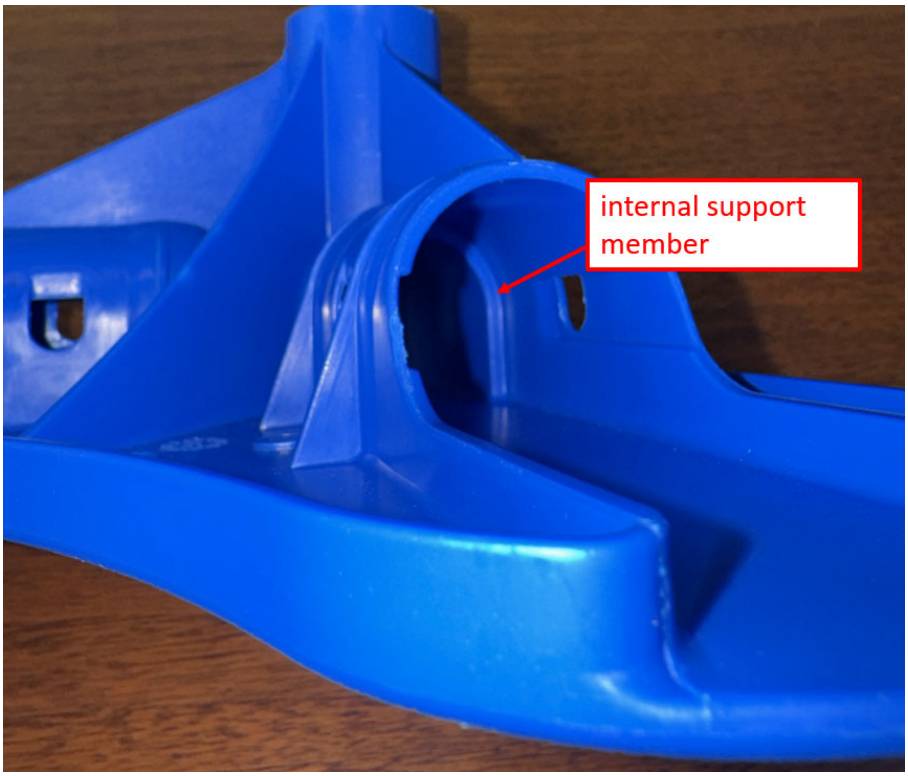
EX1002, ¶127. Providing these same ribs within the first and second (horizontal) joint portions would be a mere duplication of components to provide a reasonable expectation of success (*i.e.*, direct contact, reinforced connection, and resisting rotation). *Id.*; MPEP 2144.04(VI). *See* Claim 12 above.

**F. Claim 14**

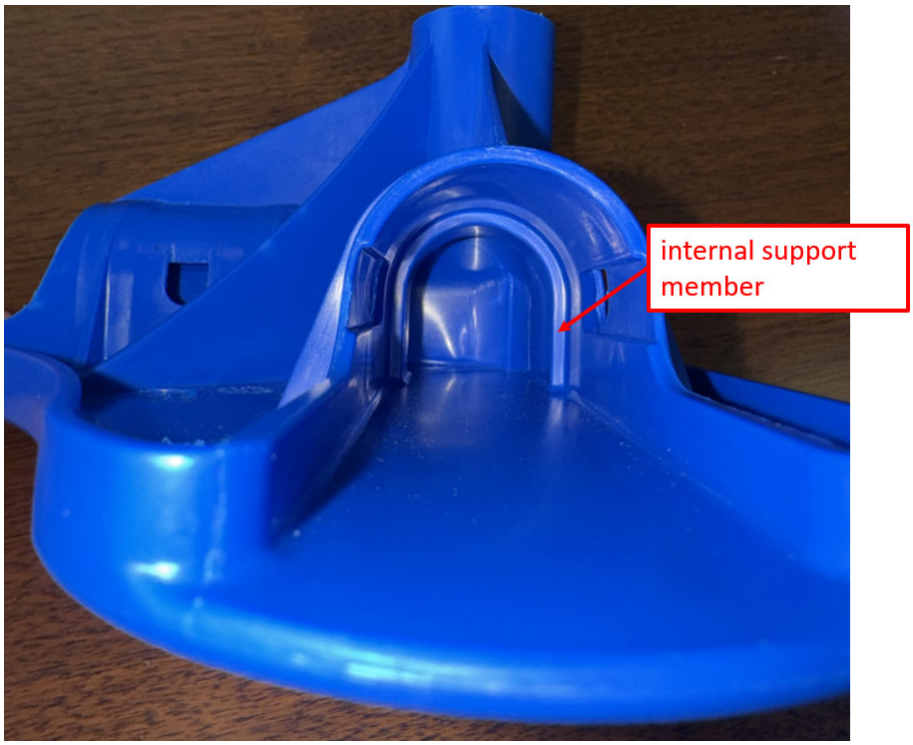
Claim 14 depends from Claim 1 and requires the first and/or second joint portion of the frame joint to include "an internal support member." Regarding this limitation, the '512 specification teaches each horizontal joint portion may include "an internal horizontal support member 5 to help support base 31 within the T-shaped joint 10." EX1001, 4:14-17. This assures the pin 33 of the coupling assembly maintains alignment with the corresponding hole 35 in the frame joint. EX1002, ¶129.

As explained above regarding Claim 13, the "corner joint" (part no. 10573/10573A) of the Intex Pool has a U-shaped ledge that abuts the horizontal frame members when they are inserted into the corner joint, thereby preventing further insertion of the horizontal frame members. EX1002, ¶130. The U-shaped ledge is also positioned at a location within the corner joint so that when the horizontal frame member is fully inserted into the corner joint and abuts the U-shaped ledge, the openings in the horizontal frame members align with the openings in the corner joint. In other words, the U-shaped ledge directly contacts the end of

the horizontal frame member to maintain alignment between the pinhole of the horizontal frame member and the pinhole of the corner joint. *Id*. This U-shaped ledge is therefore "an internal support member" in that it is internal to the frame joint and supports the horizontal frame member when it is inserted into the corner joint. EX1002, ¶130.




EX1002, ¶130




EX1002, ¶130

## G. Claim 15

### 1. Element [15.0]

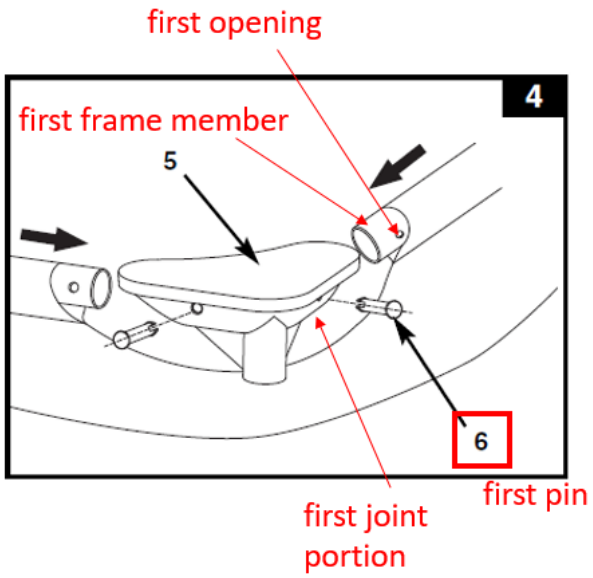
The Owner's Manual for the Intex Pool, which is set forth in Element [1.0], identifies the Intex Pool as an AGP. Additionally, as set forth in connection with the discussion of Claim 1 above, the Owner's Manual provides step-by-step instructions for assembling an AGP. EX1022. To the extent Element [15.0] is a claim limitation, it is met by the Intex Pool. EX1002, ¶131.

### 2. Element [15.1]

As set forth in Elements [1.4] and [1.5] above and with reference to the Figure below, the Intex Pool discloses coupling a first receptacle (first joint portion) of the

frame joint (5) to a first beam (first frame member) by a pin 6. As shown, the pin engages the first opening of the first frame member to couple the first frame member to the first joint portion.

**4.** Connect the corner joints **(5)** to the horizontal beams at 4 corners. Secure the joints with the pins **(6)** by inserting them into the pre-drilled holes (see drawing 4).



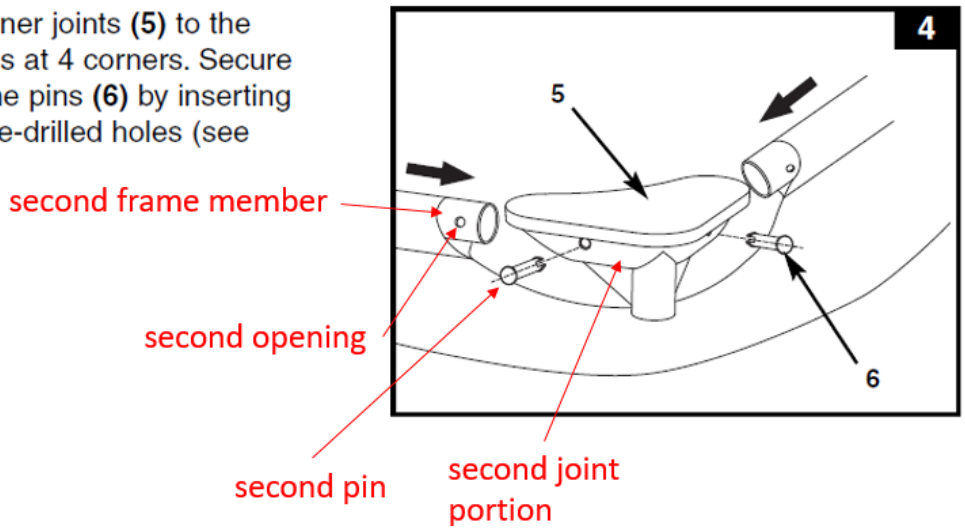

EX1022, p.9 (annotated)

The Intex Pool thus meets Element [15.1]. EX1002, ¶¶131-135.

### 3. Element [15.2]

As set forth in Elements [1.4] and [1.6] above and with reference to the Figure below, the Intex Pool discloses coupling a second receptacle (second joint portion) of the frame joint (5) to a second beam (second frame member) by a pin 6. As shown, the pin engages the second opening of the second frame member to couple the second frame member to the second joint portion.

**4.** Connect the corner joints **(5)** to the horizontal beams at 4 corners. Secure the joints with the pins **(6)** by inserting them into the pre-drilled holes (see drawing 4).




EX1022, p.9 (annotated)

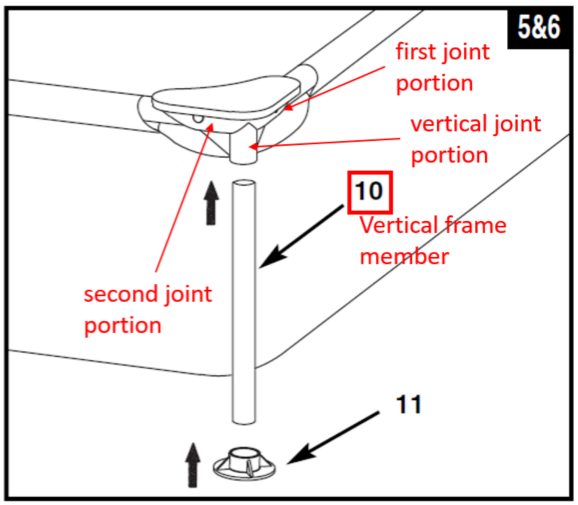
The Intex Pool thus meets Element [15.2]. EX1002, ¶¶136-139.

### 4. Element [15.3]

As set forth in Element [1.7] above and with reference to the Figure below, the Intex Pool discloses coupling the vertical joint portion of the frame joint to the vertical frame member.

**5.** Connect the vertical corner legs **(10)** to the corner top rail joints **(5)** (see drawings 5 & 6).

**6.** Attached the leg's end cap **(11)** to the bottom of the vertical legs **(10)** (see drawings 5 & 6).



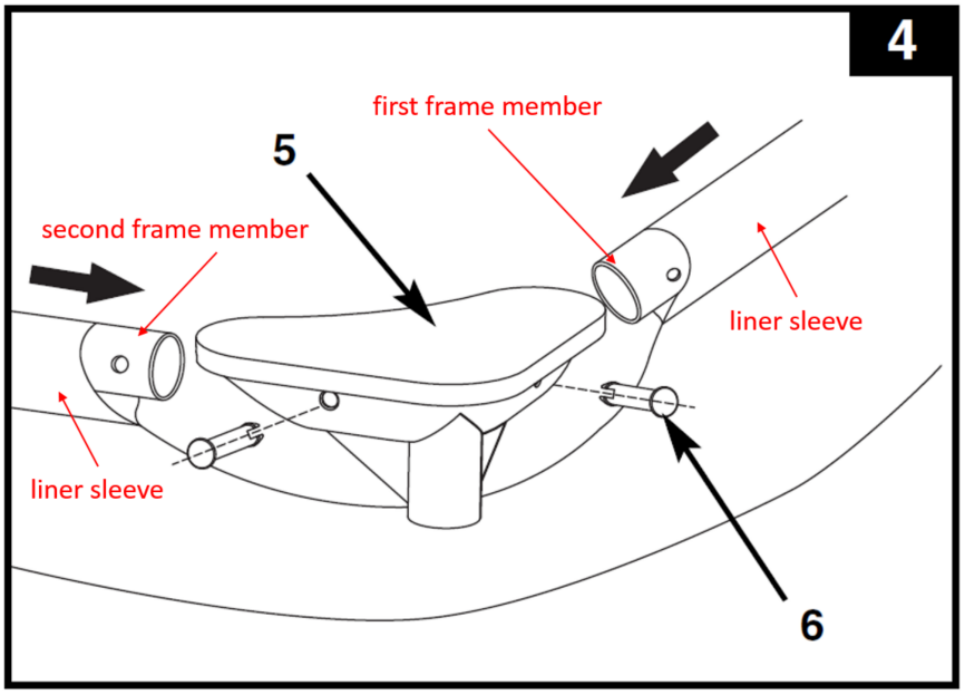

EX1022, p.9 (annotated)

Specifically, the Owner's Manual teaches connecting the vertical frame member to the frame joint. Unlike Elements [15.1] and [15.2] which require a coupling with pins, Element [15.3] does not require a pin to couple the vertical joint portion to the vertical frame member. Therefore, the Owner's Manual's teaching of connecting the vertical corner leg (10) to the corner joint (5) without a pin meets Element [15.3].

Alternatively, to the extent Element [15.3] requires coupling the vertical joint portion to the vertical frame member *with a pin*, it would have been obvious to redesign the Intex Pool to include such a pin. All that would be required would be a pinhole in the vertical frame member, a pinhole in the vertical joint portion, and a pin. EX1002, ¶142. Such a redesign would be mere duplication of components (*i.e.*, pins and pinholes) to provide a reasonable expectation of success (*e.g.*, additional structural support in the connection between the vertical frame member and the corner joint and prevent those components from coming apart). *Id.*; MPEP 2144.04(VI).

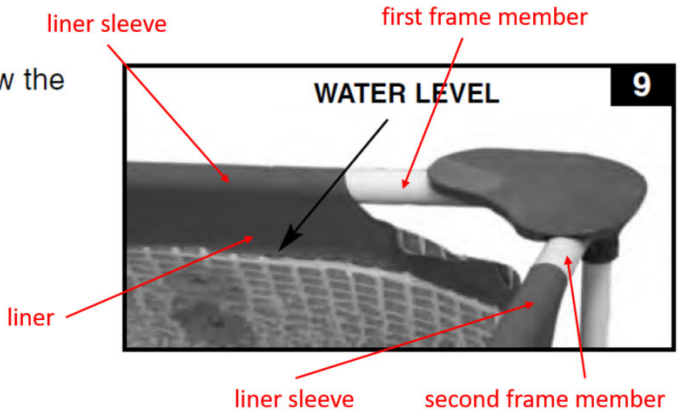
**5. Element [15.4]**

As set forth in Element [1.8] above and as shown in the Figures below, the Intex Pool discloses positioning a liner around the first and second frame members.




EX1022, p.9 (annotated)

**11.** Fill the pool with water up to just below the sleeve line. (see drawings 9).




EX1022, p.10 (annotated)

The Intex Pool thus teaches Element [15.4]. EX1002, ¶143.

### 6. Element [15.5]

As set forth in Element [1.9] above, the Intex Pool discloses the Width Limitation ("wherein a width of the vertical joint portion accounts for at least 50%

of a width between the first and second pins.") There is no practical difference between a width of "at least 50%" in Element [1.9] and a width that is "a majority" in Element [15.5], as thus the Intex Pool corner joint embodies Element [15.5]. To the extent there is any difference in these terms, Dr. Cameron's measurements show that the corner joint of the Intex Pool has a width between the pins (measured from various different locations) that nevertheless meets Element [15.5]. EX1002, ¶144.

### H. Claim 17

As discussed above in Claim 11 above, the first joint portion, the second joint portion and the vertical joint of the "corner joint" (part no. 10573/10573A) of the Intex Pool are all formed as a single plastic piece. The Intex Pool thus meets Claim 17. EX1002, ¶145.

## X. GROUND 4: CLAIMS 4-6, 10, 12, AND 18 ARE OBVIOUS OVER THE INTEX POOL IN VIEW OF LIU

### A. Motivation to Combine

Assembling the Intex Pool requires the following steps: (1) slide the horizontal beam into the corner joint, (2) align the horizontal beam so that its pinholes align with the corner joint pinholes, (3) while simultaneously maintaining the hole alignment, insert a pin through the holes so the beams are secured to the corner joint. EX1002, ¶147. These steps are shown generally at 2:08-2:48 of the YouTube video (EX1023, screenshots of which are reproduced below), as well as page 9 of the Owner's Manual (EX1022).




EX1023 at 2:09




EX1023 at 2:19




EX1023 at 2:21




EX1023 at 2:27




EX1023 at 2:40




EX1023 at 2:46

Liu simplifies the assembly via a "spring-loaded latch 15". The spring-loaded latch 15 fits within the end 121 of the vertical support member 12. The latch 15 includes a spring-biased pin 152 that is initially depressed and then extends outwardly through an aperture 122 of the vertical support member 12 when aligned. EX1006 at [0091]-[0095]. During assembly, the vertical support member 12 is slid within the vertical tubular member 131 of the T-shaped connector 13 until the pin 152 aligns with an aperture 135 at which point it is biased outwardly through the hole and "snap-lock[s]" the vertical support member 12 to the T-shaped connector 13. *Id.*; EX1002, ¶148.

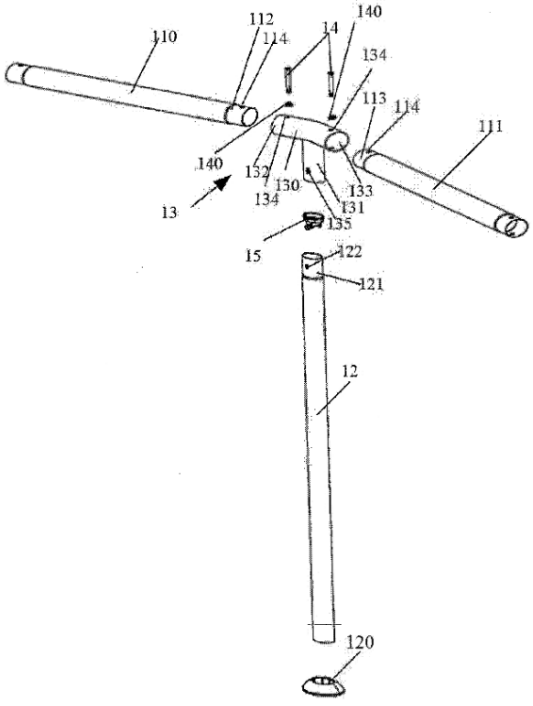



FIG. 4

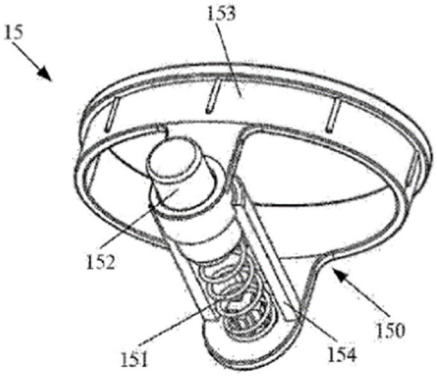
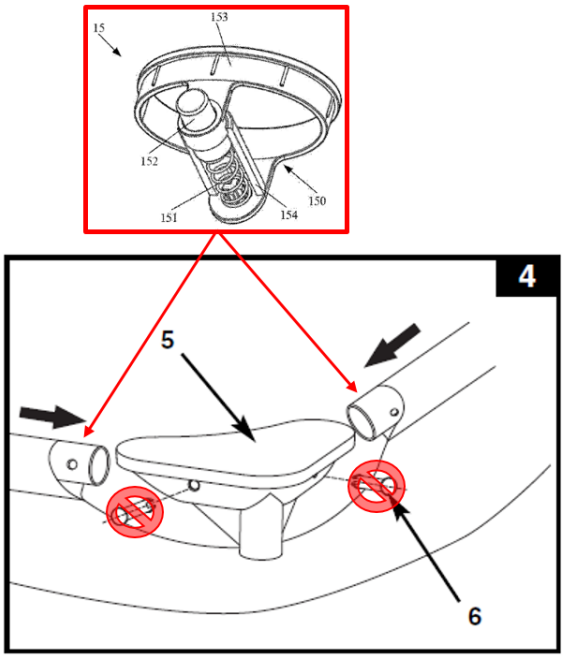



FIG. 7

EX1006, Figs. 4, 7

Given that both references are analogous, reside in the same field of endeavor, and are reasonably pertinent to problems associated with assembling above-ground pools, it would have been obvious to utilize Liu's spring-loaded latch 15 in place of the Intex Pool's pin attachment mechanism. EX1002, ¶¶149-150.




EX1009, Fig. 7 and EX1022, p.9 (annotated)

First, Liu discloses both pins and spring-loaded latches as suitable methods for attaching frame members to the T-shaped connector. For example, Liu's Figure 4 illustrates pins 14 for connecting the horizontal support members 110, 111, and a spring-loaded latch 15 for connecting the vertical support member 12. EX1002, ¶150. Meanwhile, Liu's Figure 30 discloses (or at a minimum, suggests) the opposite, namely a pin for connecting the *vertical* support member 32, and spring-loaded latches for connecting the *horizontal* support members 31. EX1002, ¶151.

As shown, the pin (which passes through both sides) connects the vertical support member 32 to the tubular member 331 (like pin 14 from Figure 4). As also shown, a pin that only passes through one side (like spring-loaded latch 15 from Figure 4) connects the horizontal support members 31 to the tubular member 330. EX1006, Fig. 30; EX1002, ¶151. Liu thus teaches that the pins and spring-loaded latches are interchangeable, suitable methods for attaching the frame members to the T-shaped joint. EX1002, ¶151. Further, a POSA would understand that spring-loaded latches – like those in Liu – are well known and well accepted substitutes for pin connectors. *Id*.

Second, replacing the pins of the Intex Pool with Liu's "spring-loaded latch" would simplify assembly. Specifically, with a spring-loaded latch, once the frame member's aperture is aligned with the corner joint's aperture, the pin automatically passes through the corner joint's aperture, thereby "snap locking" the two components. EX1002, ¶152; EX1006, [0090], [0094]-[0095]. Liu's spring-loaded latch 15 eliminates the manual and potentially difficult alignment step, and creates an easier assembly – Lui's explicit goal. EX1006 at [0009]. "Providing an automatic or mechanical means to replace a manual activity" is a recognized rationale to combine references. MPEP 2144.04(III), citing *In re Venner*, 262 F.2d 91, 95 (CCPA 1958); EX1002, ¶154.

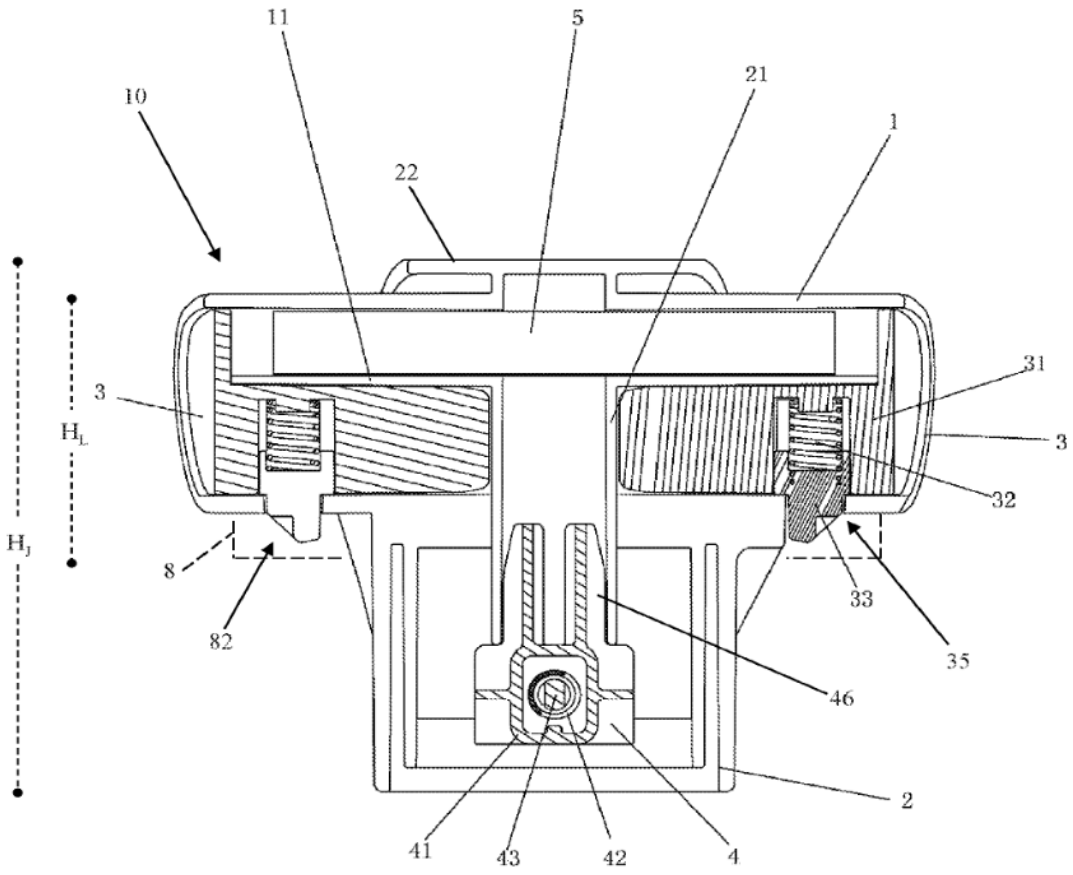
Third, substituting Intex Pool's pin connections with Liu's spring-loaded latches is a simple straight forward modification. EX1002, ¶153. Liu's spring-loaded latch 15 can easily be inserted into the horizontal beams due to its "annular outer wall 153" that can be "shaped to match or otherwise complement the cross-section" of the beam it fits into. EX1006 at [0094]. Moreover, there would not need to be modifications to the apertures because the detent pin 152 of the spring-loaded latch 15 can be sized to have the same diameter as the Intex Pool pins. A POSA would have therefore found it straightforward to replace the pin attachments of the Intex Pool with Liu's spring-loaded latches. EX1002, ¶153. The combination would have involved a simple substitution of one known element (the Intex Pool's pin connections) with another (Liu's spring-loaded latches) to obtain predictable results. *KSR Int'l Co. v. Teleflex, Inc.,* 550 U.S. 398, 415-16 (2007); EX1002, ¶153.

And fourth, the general knowledge of a POSA and common sense would lead a POSA to substitute a spring-loaded pin for a manual pin. Spring-loaded detent pins are common in many industries, from airline luggage, to tent poles, to sports nets. Anyone that travels with airline luggage knows detent pins help a user extent the handle away from the bag. EX1002, ¶156.

## B. Claim 4

### 1. Element [4.0]

Claim 4 depends from Claim 1 and (referring to Figure 4 below) requires the first joint portion to include "a first coupling assembly" 3 which includes a first pin 33, a first base 31, and a first helical spring 32 supported by the first base 31.




EX1001, Fig. 4

The "spring-loaded latch 15" of Liu has all the elements of the claimed "coupling assembly." Liu's spring-loaded latch 15 has a "pin boss 150" that "houses a spring element 151 and a detent pin 152." EX1006, [0093]. As shown below, the spring 151 is helical, and is supported by a base of the spring-loaded latch 15.

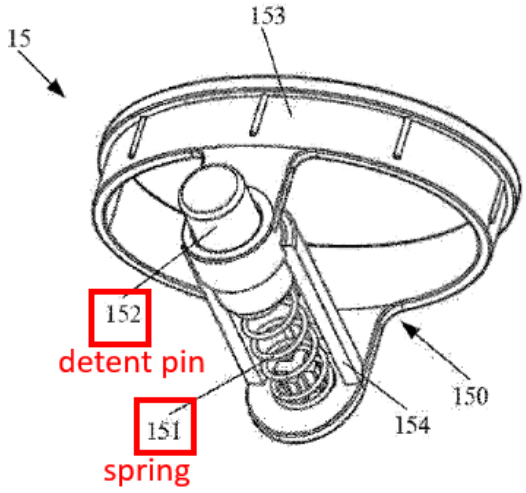



FIG. 7

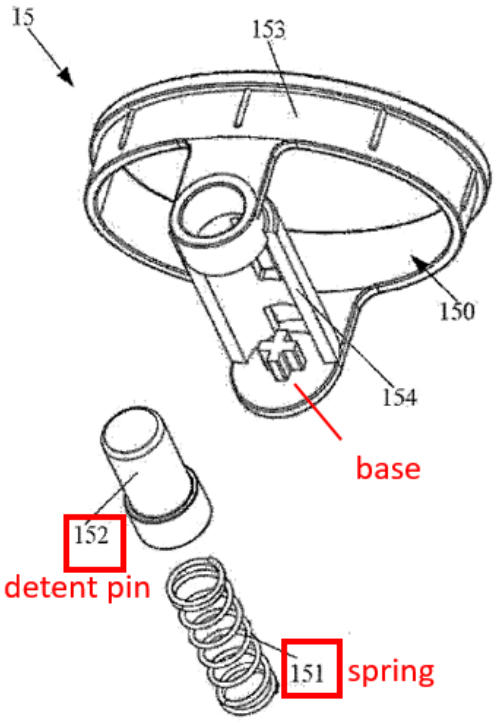



FIG. 11

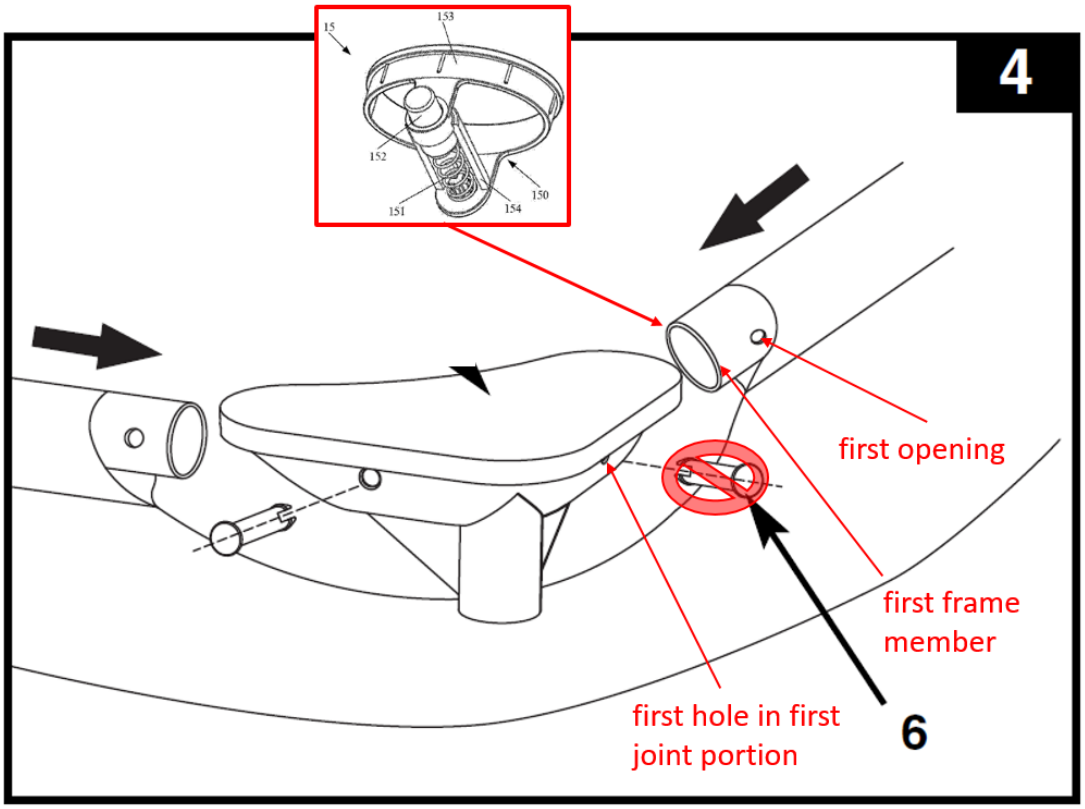
EX1002, ¶158

Thus, Liu teaches Element [4.0]. EX1002, ¶¶157-159.

**2. Element [4.1]**

Liu teaches that "[t]he aperture 135 on the vertical tubular member 131 may be aligned with the aperture 122 on the vertical support member 12, so that the detent pin 152 passes through the apertures 122 and 135 to, for example, snap-lock the T-shaped connector 13 to the vertical support member 12." EX1006, [0095]. The "snap-lock" is performed by way of the detent pin being "outwardly biased by the spring element to engage the aperture [of the vertical support member 12]."

EX1006, [0018]. Therefore, Liu's spring-loaded latch has a detent pin that will outwardly bias through the hole in the horizontal beam and the hole in the joint connector to snap-lock the two components together and disclose Element [4.1]. EX1002, ¶161. To the extent Liu does not expressly teach incorporating the latch into the first (horizontal) joint portion, it would have been obvious (for the reasons discussed above) to utilize Liu's spring-loaded latch 15 in place of the Intex Pool's pins in each of the first and second (horizontal) joint portions as doing so would involve a simple substitution of a known element to obtain predictable results, and therefore Element [4.1] is obvious. *See* Section X(A).




EX1009, Fig. 7 and EX1022, p.9 (annotated); EX1002, ¶161

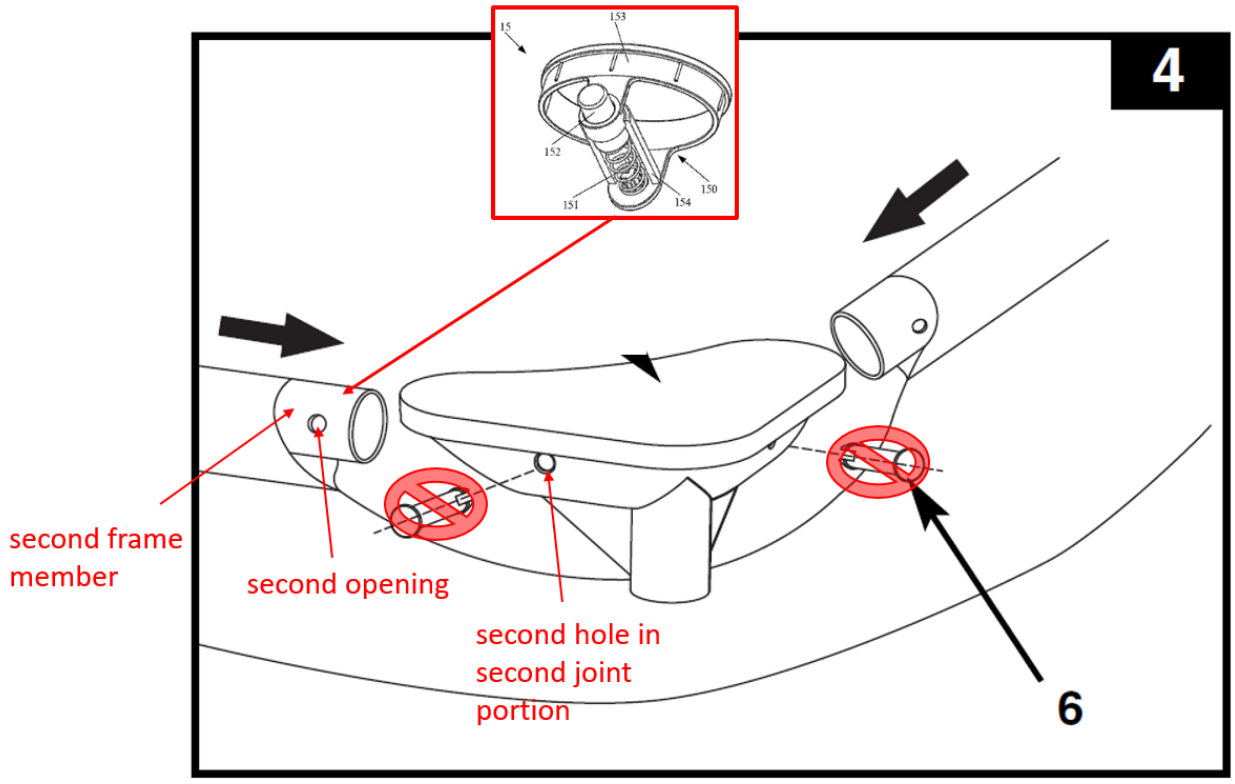
### C. Claim 5

#### 1. Element [5.0]

As discussed above in connection with Element [4.0] above, Liu discloses a "spring-loaded latch 15" having a "pin boss 150" that "houses a spring element 151 and a detent pin 152." EX1006, [0093]. Liu also discloses spring loaded latches in other side of the T-shaped joint to secure two horizontal frame members thereto (one on either side). EX1006, Fig. 30; Section X(A). Liu thus teaches Element [5.0]. EX1002, ¶162.

#### 2. Element [5.1]

As set forth in Element [4.1] above, it would have been obvious to utilize Liu's spring-loaded latch in the opposing joint portions of the Intex Pool to secure the first and second beams to the frame joint. Thus, when Liu's spring-loaded latch 15 is incorporated into the second horizontal beam of the Intex Pool, the combination discloses the second pin being biased outward through a second hole in the second joint portion by the second helical spring to engage the second opening of the second frame member.




EX1009, Fig. 7 and EX1022, p.9 (annotated); EX1002, ¶162

Thus, Liu teaches Element [5.1]. EX1002, ¶162.

**D. Claim 6**

The '512 Patent provides no explicit definition for "about 70%" as it applies to the width of the vertical joint portion. The '512 Patent merely states that "the width $W_{J3}$ of the vertical joint portion 2 may account for 50%, 60%, 70%, 80%, or more of the width $W_{J2}$ between the pins 33 of the coupling assemblies 3." EX1001, 5:21-24. As discussed above, this term is indefinite as it is reasonably susceptible of multiple meanings.

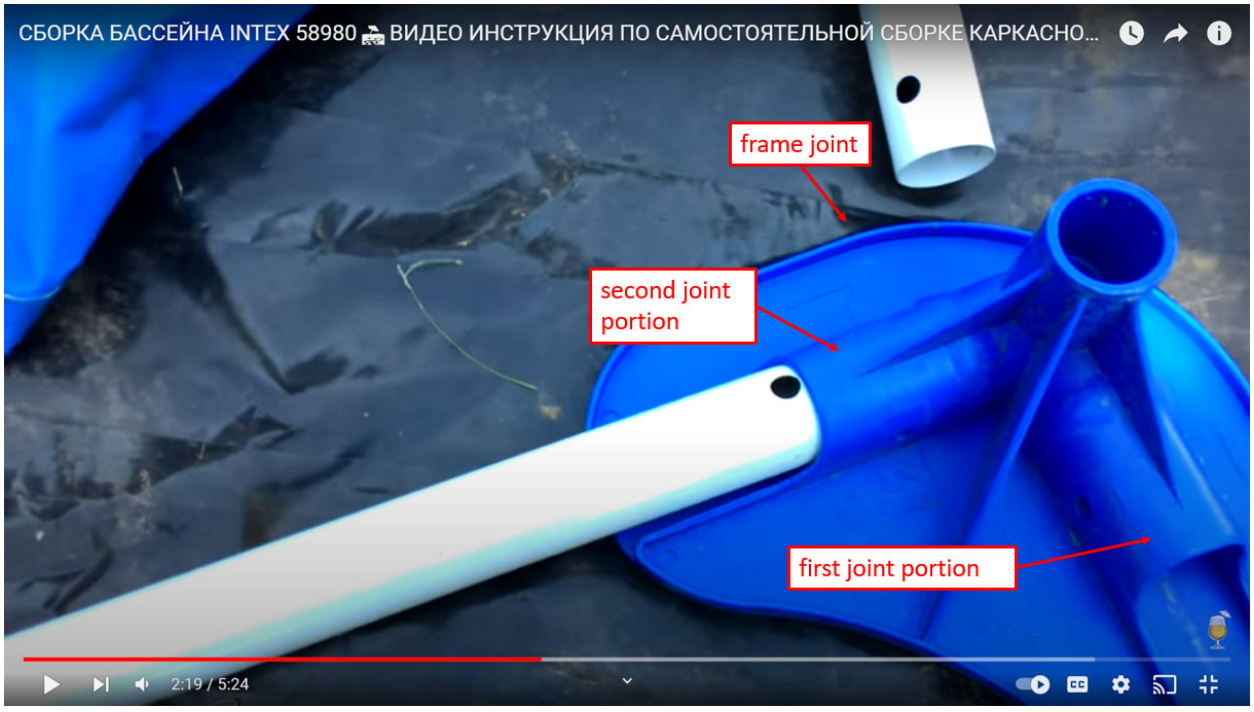
However, Dr. Cameron measured a physical sample of the corner joint of the Intex Pool and determined that the width of the vertical joint portion accounts for

70.6% of the widths between the centerlines of the pins. EX1002, ¶¶107-108, 164. While the width between the pins can vary depending upon where along the pins the measurements are taken, the methodology used on the Intex Pool to arrive at 70.6% is the same as that shown in Figure 4 of the '512 Patent. This figure is clearly "about 70%" and thus the Intex Pool meets Claim 6.

### E. Claim 10

Claim 10 depends from Claim 1 and requires the first and second joint portions to form an obtuse angle. This claim is obvious over the Intex Pool in view of the obtuse frame members disclosed in Liu.

The Intex Pool is rectangular. Therefore, at each corner joint (*i.e.*, frame joint), the first and second joint portions form a right angle. *See* below.




EX1023 at 2:19

However, it is well-known and understood that above-ground frame pools come in many shapes and sizes prior to the '512 Patent. EX1002, ¶166. For example, the Intex Catalogs show both round and rectangular above-ground frame pools. *See, e.g.*, EX1016, pp.11-15; EX1017, pp.12-15. Similarly, Liu discloses frame pools having a "substantially circular" shape (EX1006, [0088], Fig. 1, 12), a "rectangle" shape (*Id.*, [0099], Fig. 13, 28), and a "substantially elliptical" shape (*Id.*, [0117], Fig. 29, 34) as shown below. Selecting one of these shapes of pools would be a simple choice of aesthetic desires, size or specific layout of a person's yard, etc. EX1002, ¶166.

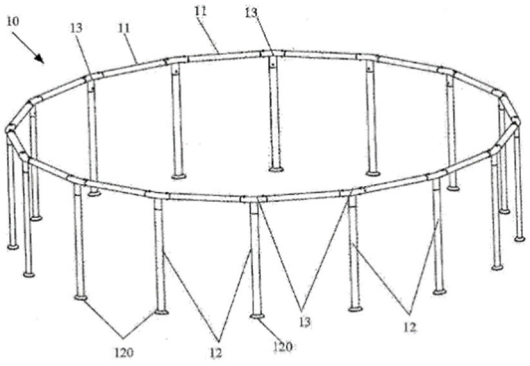



FIG. 1

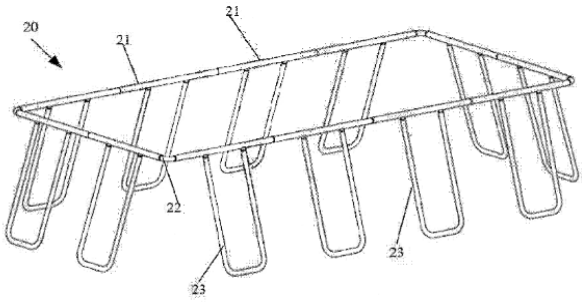



FIG. 13

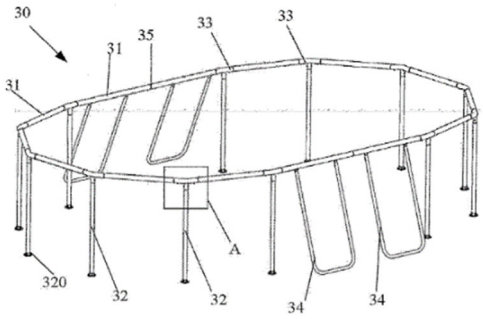
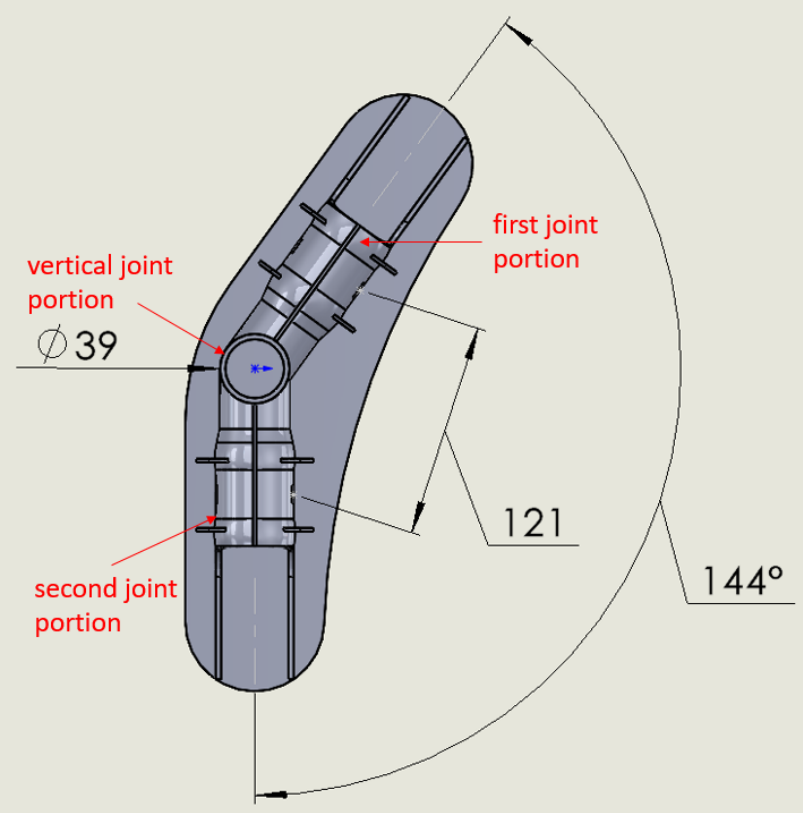



FIG. 29

It was also well known that these AGPs modified the relative angle of the frame joint portions (that connect the frame members) to achieve the desired pool size and shape. EX1002, ¶167. For example, the figures of Liu (above) illustrate frame joints with various angles between the joint portions, including 180 degrees (rectangular pool), 90 degrees (corner joint rectangular pool) and various oblique angles therebetween (round and oval pools). EX1002, ¶¶166-167. Given this knowledge, it would have been obvious to modify the Intex Pool's corner joint such that the angle between its first and second joint portions is an obtuse angle rather than a right angle to create a round or oval pool. As the Intex Pool has 10 vertical support members and 10 pole connectors (EX1023-1025), a POSA would have naturally considered modifying the Intex Pool to be a round pool with 10 vertical supports and 10 pole connectors. EX1002, ¶169. Such a pool would have a 144-degree angle between the first and second joint portions.[14] EX1015, p.29; EX1002, ¶¶168-170. It would be a simple redesign of the Intex Pool's corner joint to form a 144-degree angle between the first and second joint portions. EX1002, ¶170. Below illustrates the Intex Pool's corner joint with the first and second joint portions rotated to have a 144-degree angle.

[14] Lee explains these general geometric principals, wherein the angle is equal to 180-360/n°, where n is the number of horizontal or vertical frame members in the frame pool. In a pool with 10 T-shaped connectors, n=10 and the angle is 144 degrees.




EX1002, ¶170

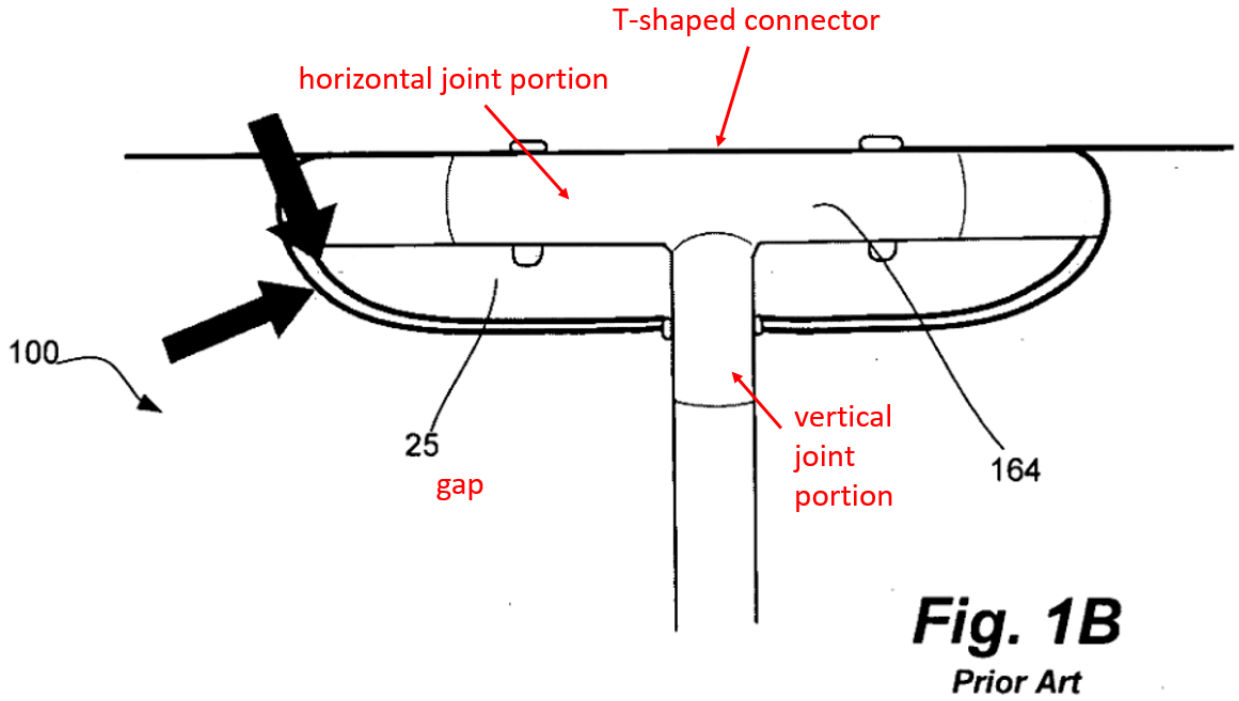
To the extent this modified joint did not meet the Width Limitation, it would have been obvious to modify the joint to move the pin locations inward closer to the vertical joint portion for various separate reasons. EX1002, ¶¶171-175.

First, the location of the pins is an obvious design choice so long as their placement does not negatively affect the strength or integrity of the connection to the first and second (horizontal) frame members, and the pins remain accessible (*e.g.*, are not concealed by the liner). EX1002, ¶¶111-112, 171. Indeed, a POSA would easily be able to design a T-connector that utilized less material (*i.e.* smaller) while still providing the necessary structural support. In fact, a POSA would

understand that moving ends of the horizontal frame members (and thereby their pinholes and the pins) closer to the vertical joint portion would reduce the lever arm for forces acting on the corner joint, thereby reducing the bending moment and ultimately the stresses acting on the corner joint. EX1002, ¶171. As such, it would be an obvious design choice to position the pins such that the width of the vertical joint portion is at least 50% of the width between the pins. The simple structural rearrangement of parts, particularly when the underlying functionality remains the same, is generally considered to be an obvious matter of design choice. *In re Kuhle*, 526 F.2d 553, 555 (C.C.P.A. 1975); MPEP 2144.04. This is especially the case here because the '512 Patent does not identify any criticality or unexpected result caused by the particular "width between the pins."

Second, a POSA would have been motivated to move the pins inward – closer to the vertical joint portion – to minimize the size of the corresponding opening in the liner and thus the amount of water than can escape the pool. EX1002, ¶172. Indeed, the prior art recognizes there was a known problem of losing water through these openings in the liner near the T-shaped joints. For example, Cheng (annotated below) explains that "frame-pools have gaps 25 near an angle in the horizontal support members 164" in order to access the T-shaped joints. EX1007, [0004]. "As a result, when a splash of water travels towards the gap 25, water can exit the pool

via the gap 25. This may result in a loss of water that would, otherwise, not exit the pool." *Id.*

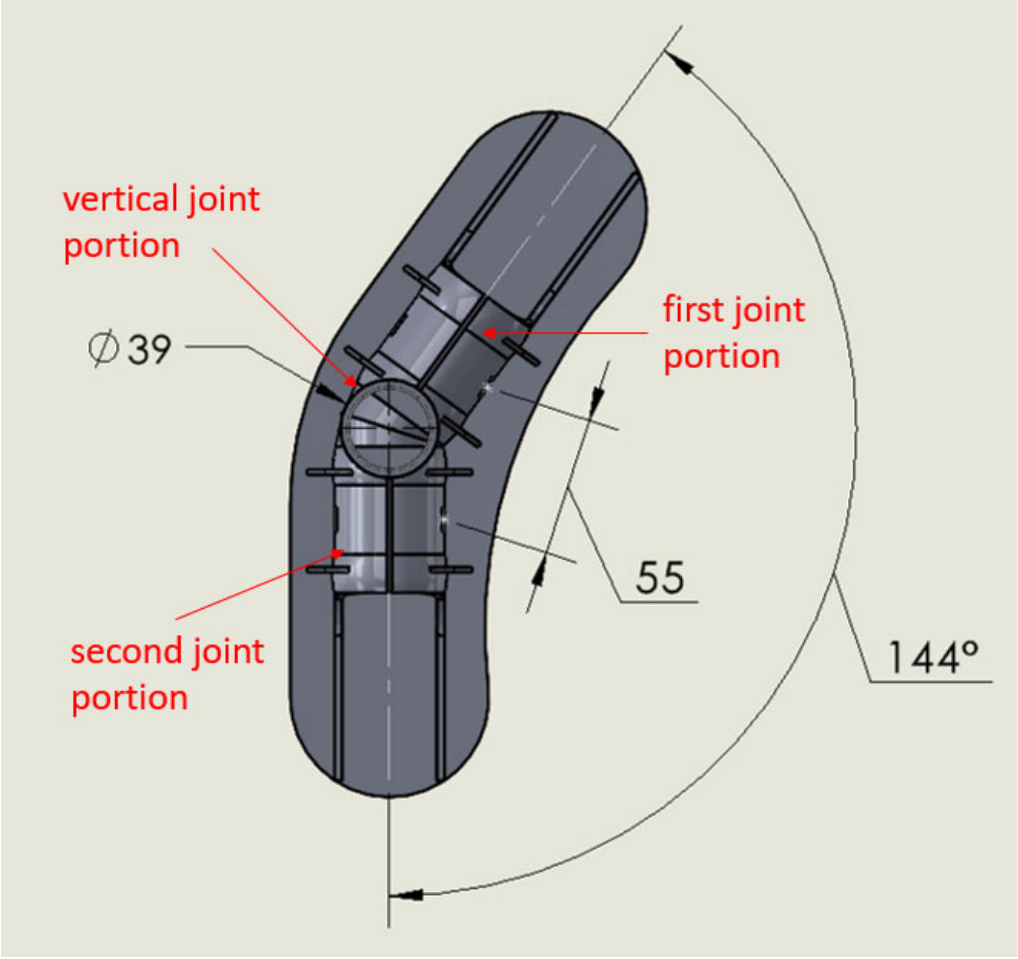



EX1007, Fig. 1B

Cheng solves the problem of water splashing through the gap 25 by covering the gap 25 with a separately-manufactured "splash guard 200". However, a POSA would have also immediately recognized that reducing the size of this gap in the liner would be another way to reduce the amount of water loss. EX1002, ¶173. Put simply, the smaller the gap in the liner, the less water can escape through the gap. *Id.* In attempting to minimize these gaps, a POSA would have been motivated to reduce the width between the pins in order for them to remain accessible via the gaps in the liner. *Id.* In other words, reducing the distance between the pins allows for a smaller liner gaps while still maintaining accessibility. Shrinking the size of these

gap without also shrinking the width between the pins would result in the pins being concealed by the liner. *Id*. This would create an undesirable pool liner that prevents accessibility to the pins of the T-shaped connectors. *Id*.

In view of this, a POSA would be motivated to redesign the corner joint with pinholes moved closer to the vertical joint portion in order to reduce the overall width of the corner joint.




EX1002, ¶174

To maintain its structural integrity, this redesigned corner joint (a) preserves the diameter of the vertical joint portion, (b) conserves sufficient distance between the pinholes and the vertical joint portion such that the location of the horizontal frame member's pinholes would not change, and (c) maintains the same length of horizontal frame member that is inserted into the corner joint.[15] The result is a corner joint having a distance between the center axes of the pinholes measuring 55mm, yielding the width of the vertical joint portion to be 70.1% of the width between the pins. EX1002, ¶174.

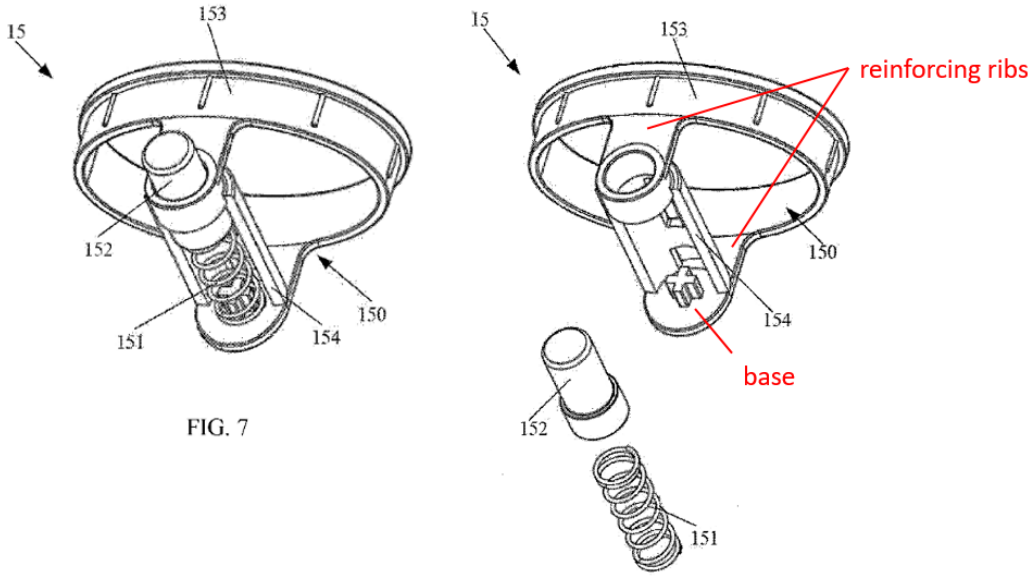
Third and finally, a POSA would have been motivated to minimize the overall size of the T-shaped connector, which would decrease the amount of material and ultimately the cost to manufacture the connector. EX1002, ¶175. Given that an AGP uses multiple T-shaped connectors with each pool, this cost savings can be significant. In reducing the size of the T-shaped connector, a POSA would appreciate that the diameter of each of the joint portions (horizontal and vertical) should remain fixed so that they remain sized to receive the frame members. Instead, to reduce the size of the T-shaped connector for the Intex Pool, a POSA would look to reduce the overall length of the T-shaped connector. EX1002, ¶175; *see* Element [1.9]. Thus, a POSA would shorten the first and second frame joints without

[15] In other words, the amount of horizontal frame members that is contained within the corner joint remains the same.

affecting the length of each frame member that is received therein. In so doing, a POSA would eliminate material (and subsequently result in material cost savings) from near the vertical joint, as discussed above in connection with Element [1.9]. Cost reduction should be considered in its motivation to combine. *See e.g. Everstar Merchandise Co. Ltd. v. Willis Electric Co., Ltd.*, 2022 WL 1089909, at *4 (Fed. Cir., 2022). By shortening the first and second frame joints, the pins would naturally move closer together such that the width between them would be decreased. Doing so, the width between the pins would be greater than 50% of the width of the vertical joint portion. *See* Figure above; EX1002, ¶174, 175.

**F. Claim 12**

The ’512 Patent discloses “one or more vertical reinforcing ribs 21 to help support base 41 [of coupling assembly 4] within the T-shaped joint 10.” EX1001, 4:46-49. Similarly, Liu’s spring-loaded latch 15 includes support ribs (labeled below) that connect to and support the base that contacts the end of the spring 151.




EX1001, Figs. 7, 11 (annotated)

It would have been obvious to incorporate Liu's spring-loaded latch 15 into the Intex Pool's corner joint to connect the corner joint to a vertical frame member. *See* Section X(A) and Element [15.5] above; EX1002, ¶175A. Such a redesign would be mere duplication of components (*i.e.*, spring-loaded latch 15 and pinholes) to provide a reasonable expectation of success (*e.g.*, additional structural support in the connection between the vertical frame member and the corner joint to prevent those components from coming apart). *See* MPEP 2144.04(VI). When the spring-loaded latch 15 is incorporated into the Intex Pool to connect the vertical joint portion to the vertical frame member, the vertical joint portion of the corner joint includes the support ribs labeled above. EX1002, ¶175A.

### G. Claim 18

#### 1. Elements [18.0] and [18.1]

As discussed in Ground 4, Claims 4-5 above, Liu discloses a "spring-loaded latch 15" having a "pin boss 150" that "houses a spring element 151 and a detent pin 152." EX1006, [0093]. "The detent pin is configured to lock the vertical tubular member and the vertical support member together." *Id*., [0036]. Specifically, "the detent pin 152 [is] snap-fitted into the aperture 122 on the end 121 of the vertical support member 12 under the elastic force of the spring element 151." *Id*., [0094]. The pin 152 is depressed against this elastic force in order to fit the pin 152 and the vertical support member 12 into the vertical tubular member 131 of the T-shaped connector 13. EX1002, ¶177. The pin 152 remains depressed in the vertical tubular member 131 until "[t]he aperture 135 on the vertical tubular member 131 [aligns] with the aperture 122 on the vertical support member 12, so that the detent pin 152 passes through the apertures 122 and 135 to, for example, snap-lock the T-shaped connector 13 to the vertical support member 12." *Id*., [0095]. In other words, when the apertures 122 and 135 are aligned, the detent pin 152 is released into engagement with both the vertical support member 12 and the T-shaped connector 13. EX1002, ¶177.

Liu thus discloses depressing the first pin into the first joint portion and releasing the first pin into engagement with the first frame member, and depressing

the second pin into the second joint portion and releasing the second pin into engagement with the second frame member. Claim 18 is thus obvious over the Intex Pool in view of Liu, including for the reasons discussed above in Section X(A).

## XI. GROUND 5: CLAIMS 1, 4-6, AND 9-18 ARE OBVIOUS UNDER 35 U.S.C. §103 OVER LIU IN VIEW OF HUNTER

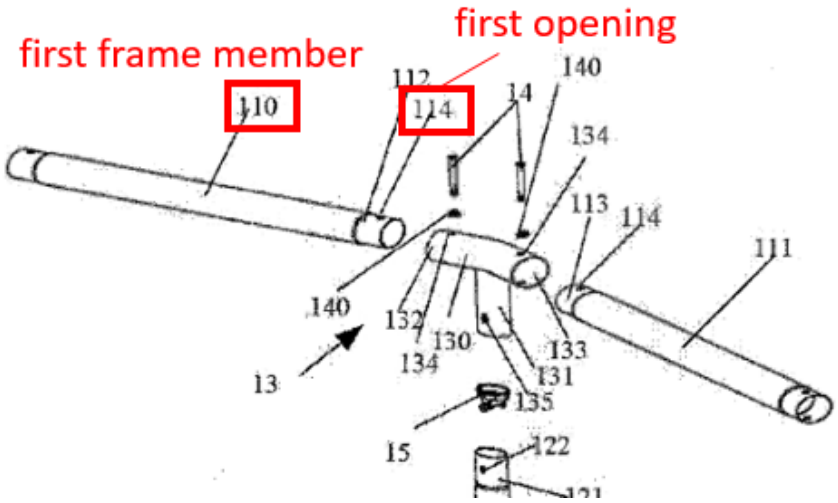
### A. Claim 1

#### 1. Element [1.0]

Liu discloses an "above ground pool" 100. EX1006, Title, Abstract, Fig. 12. EX1002, ¶178. To the extent Element [1.0] – the preamble – is a limitation, Liu meets it.

#### 2. Element [1.1]

Liu's above ground pool 100 has a support frame 10. EX1006, [0084], [0096], Fig. 1. The support frame 10 includes "a plurality of horizontal support members 11" including "a first horizontal support member 110." *Id*., [0085], [0089]. A "set of positioning holes 114 is provided on the end 112 of the first horizontal support member 110." *Id*., [0089]-[0090].

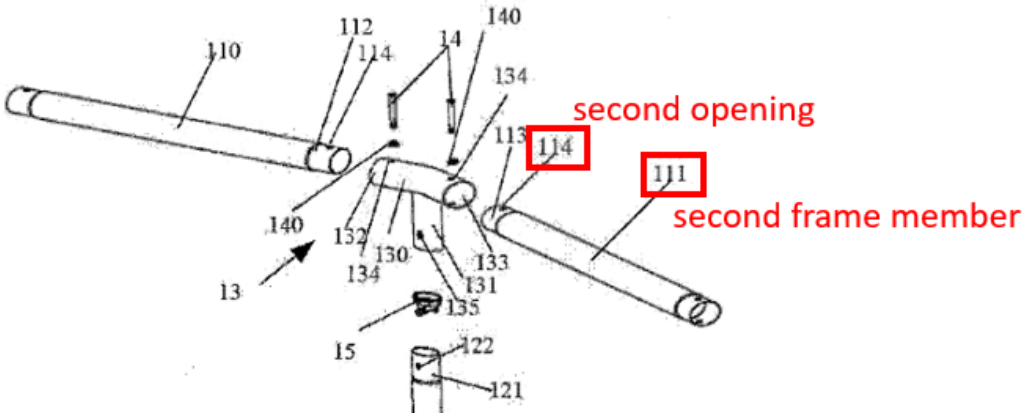



EX1006. Fig. 4 (annotated); EX1002, ¶180

Liu thus meets Element [1.1].

### 3. Element [1.2]

Liu's support frame 10 also includes a second horizontal support member 111, and a "set of positioning holes 114 is provided on… the end 113 of the second horizontal support member 111. EX1006, [0089]-[0090].

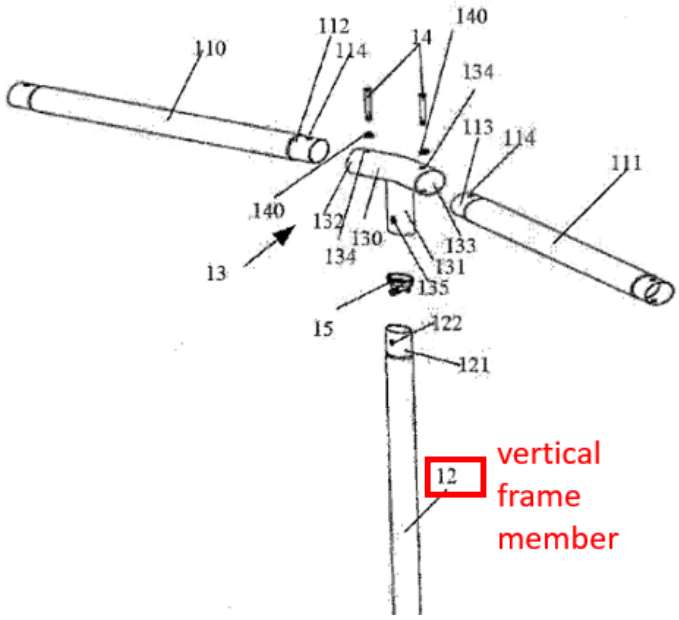



EX1006, Fig. 4 (annotated); EX1002, ¶182

Liu thus meets Element [1.2].

**4. Element [1.3]**

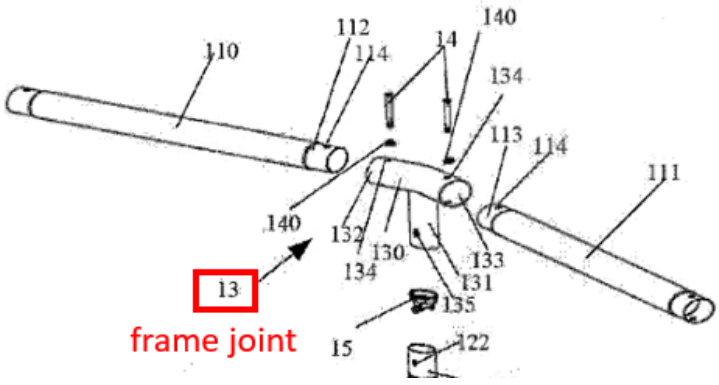
Liu's support frame 10 also includes "a plurality of vertical support members 12." *Id.*, [0085] as required by Element [1.3].




EX1006, Fig. 4 (annotated); EX1002, ¶184

**5. Element [1.4]**

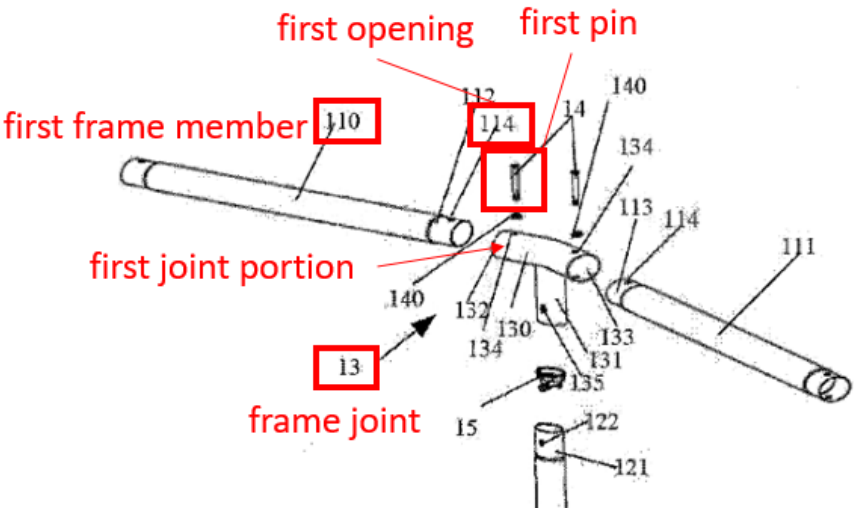
Liu discloses a "T-shaped connector 13" to "couple the horizontal support members 11 and the vertical support members 12 together" as required by Element [1.4]. *Id.*, [0085].




EX1006, Fig. 4 (annotated); EX1002, ¶186

### 6. Element [1.5]

Liu's "T-shaped connector 13 includes a horizontal tubular member 130" that is "detachably coupled to an end 112 of a first corresponding horizontal support member 110" "by a retainer." *Id*., [0087], [0089]. The retainer includes "a retaining pin 14." *Id*., [0090]. The retaining pin 14 is "passed through" positioning holes 134 on the T-shaped connector and then through a "second set of positioning holes 114 (as shown in Figures 4 & 6),), so that the first joint portion of the horizontal tubular member 130 of the T-shaped connector 13 and the corresponding horizontal support members (*i.e*., the first horizontal support member 110 []) are, for example, snap-locked together." *Id*.

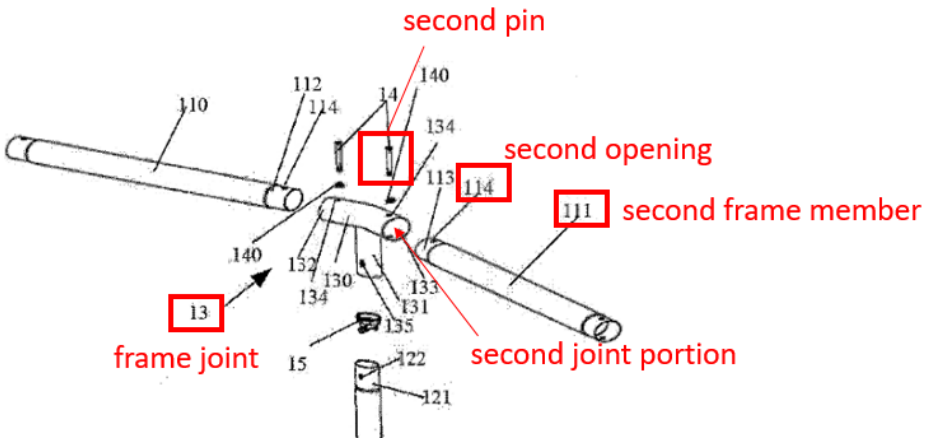



EX1006, Fig. 4 (annotated); EX1002, ¶188

### 7. Element [1.6]

Likewise, in Liu, another retaining pin 14 is "passed through" another positioning hole 134 on the T-shaped connector and then through another set of

"second set of positioning holes 114 (as shown in Figure 4 & 6) of the second horizontal support member 111 "so that the [second joint portion of the] horizontal tubular member 130 of the T-shaped connector 13 and the corresponding horizontal support members (*i.e.*, … the second horizontal support member 111) are, for example, snap-locked together." *Id.*, [0090].

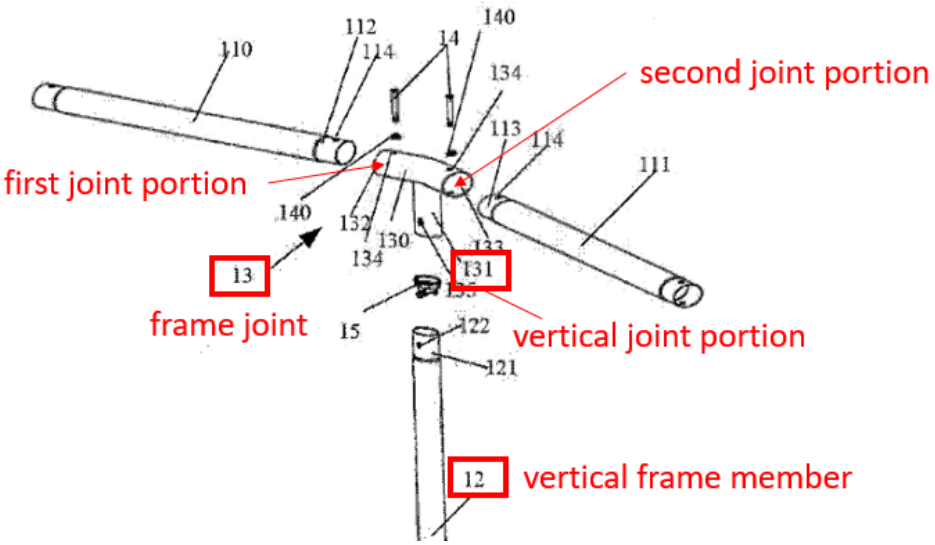



EX1006, Fig. 4 (annotated); EX1002, ¶190

Liu thus teaches Element [1.6.].

**8. Element [1.7]**

Liu's T-shaped connector 13 has a "vertical tubular member 131" that is "detachably connected to the corresponding vertical support member 12." *Id.*, [0091]. The vertical tubular member 131 and the horizontal tubular member 130 are part of the same T-shaped connector 13, and are therefore connected.

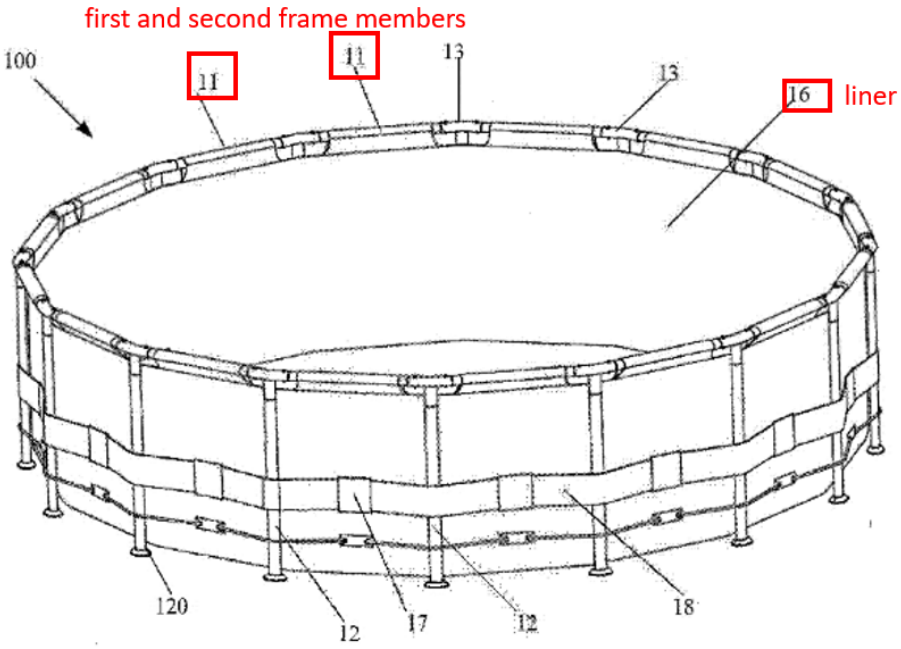



EX1006, Fig. 4 (annotated); EX1002, ¶192

Liu thus teaches Element [1.7].

### 9. Element [1.8]

Liu's above ground pool 100 includes a "pool liner 16" that is "affixed to and supported by the support frame 10." EX1006, [0096]. "[T]he upper part of the pool liner 16 may be sheathed on the horizontal support members 11," *id*., and is therefore "positioned around" the horizontal support members 11 as shown illustratively below.

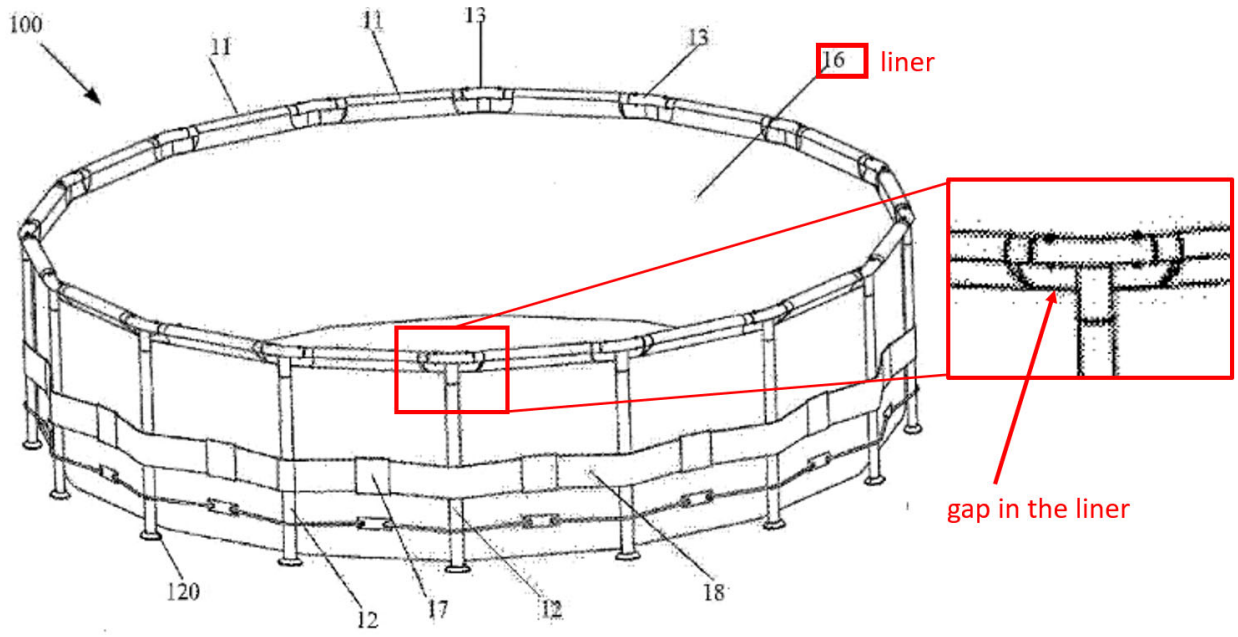



EX1006, Fig. 12 (annotated); EX1002, ¶194

Liu thus teaches Element [1.8].

### 10. Element [1.9]

Liu does not explicitly disclose any specific measurements as to either the vertical joint portion or the width between the pins. However, a POSA would have found it obvious to reduce the overall width of Liu's vertical support members 12, thereby bringing the pins closer to one another (and thus falling within the scope of Element [1.9]), in order to reduce the size of the opening in the liner to prevent unwanted loss of water from splashing out of the pool. EX1002, ¶¶195-208. Specifically, Liu has gaps in liner that correspond to the T-shaped connectors' locations.




EX1006, Fig. 12 (annotated)

The problem of water escaping through these gaps was well-known in the prior art. EX1002, ¶196. For example, Cheng explains that "frame-pools have gaps 25" near the T-shaped joints, which can allow water to exit the pool resulting in loss of water.[16] EX1007, [0004]; EX1002, ¶196. In order to solve this problem, Cheng discloses a "splash guard 200" that covers this gap to prevent water loss. EX1007, Abstract, [0049]; EX1002, ¶197. A POSA designing an AGP frame pool would be motivated to solve this same problem and would immediately recognize that reducing the size of the gap 25 would also work to solve the problem of water loss through the gap without the cost (labor and material) associated with installing Cheng's "splash guard" to an AGP. EX1002, ¶¶197-198. Shrinking the gap 25 in

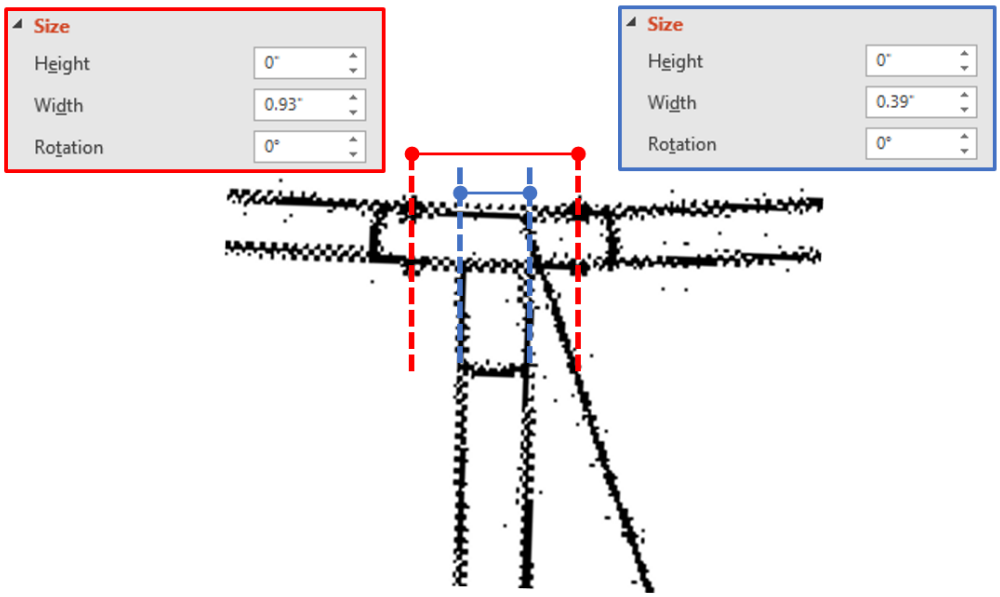
[16] This same problem was recognized in the '512 Patent. EX1001, Background.

order to minimize the amount of water splashing through the gap 25 would have been an immediate thought of a POSA to solve the problem. *Id*.

Accordingly, a POSA would have been motivated to reduce the size of these gaps in Liu to minimize water loss. EX1002, ¶199. In so doing, a POSA would know that by reducing the gap size, the width between the pins would also need to decrease to ensure the T-shaped connectors were still accessible via the liner gaps. *Id*. *See* Section X(E), Claim 10 above.

Moreover, a POSA would have been motivated to reduce the overall width of Liu's T-shaped connector to also decrease material costs. *See* IX. A. 8, Element [1.9]. As simple design choice, this again would naturally involve bringing the pin locations closer to the vertical joint. However, a POSA would understand that reducing the overall width of T-shaped connector would not require a reduction in the width of the *vertical* joint portion of the T-shaped connector. EX1002, ¶200. This is because the width of the vertical joint portion would have no bearing on the width of the liner gap. A POSA would be motivated to keep the same diameter in the vertical frame members in order to not impact the structural integrity of the frame pool. *Id*. Therefore, a POSA would be motivated to maintain the width of the vertical joint portion for structural integrity of the pool while reducing the overall width of the T-shaped connector (and thus the distance between the pins). EX1002, ¶¶200-201.

Thus, it would have been obvious to reduce the overall width of Liu's T-shaped connector (and thus the width between the pins) in order to allow for a reduction in the liner opening in order to reduce the amount of water splashed outside of the pool. EX1002, ¶201. This would move the pins closer to the vertical joint portion. *Id*. In looking at Liu's frame pool (below), the width between the pins already accounts for roughly 42% of the width of the vertical joint portion, and therefore only a slight reduction in the liner gap will achieve corresponding pin width decrease that would read on Element [1.9].




EX1006, Fig. 1 (annotated); EX1002, ¶201

Given this, a POSA would have also looked to other pools (or similar structures) to learn how smaller T-shaped joints might reduce the width of the liner gaps, thereby improving the pool's ability to contain water. EX1002, ¶202.

Hunter discloses such a structure. Hunter is directed to a modular fence 100 for an above-ground pool. EX1008, Abstract. The fence 100 includes a plurality of linkages 114 (also referred to as a "three-way connector," a "T-connector," or a "Y-connector") that connect adjacent side struts 120 to a vertical support strut 112. *Id*., [066]-[069]. A "peg or pin 132" is "inserted" through the T-connector 114 and "into the side strut 120" to connect the T-connector 114 to the side strut 120. *Id*., [094].

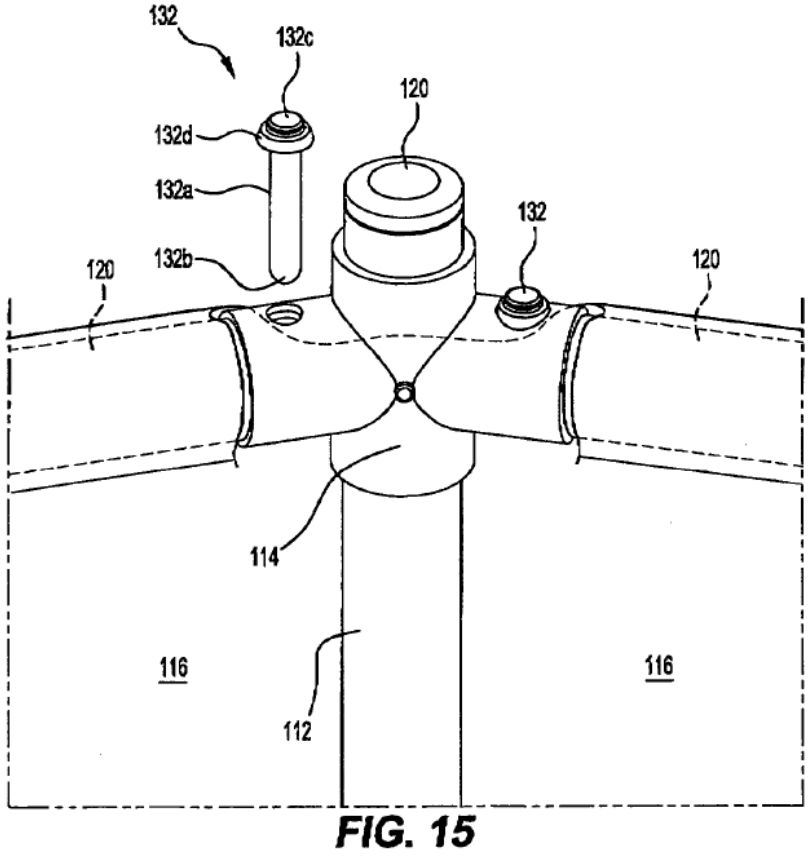



FIG. 15

EX1008, Fig. 15

A POSA would have immediately noticed the similarities between Hunter's T-connector 114, Cheng's T-shaped connector, and Liu's T-shaped connector 13. EX1002, ¶204. A POSA would have also immediately recognized the relatively

small overall width of the T-connector 114, and that if it were used in place of Liu's T-shaped connector 13, it could reduce the size of the aligned gaps in the liner, thereby reducing the amount of water splashed out of the pool. EX1002, ¶204. A POSA would understand how to modify Hunter's T-connector 114 so that it would withstand the forces of the water in the pool, such as by including reinforcement ribs or thickening of the T-connector material. *Id*.

By simple visual inspection of Hunter's Fig. 15, a POSA would have immediately understood the width of the vertical joint portion of the T-connector 114 to be "at least 50%" of the width between the pins 132. EX1002, ¶205. A simple measurement (shown below) would confirm that the width of the vertical joint portion accounts for roughly 61% of a width between the pins 132. *Id*. Thus, Hunter's T-connector 114 and pins 132 disclose the limitations of Element [1.9].

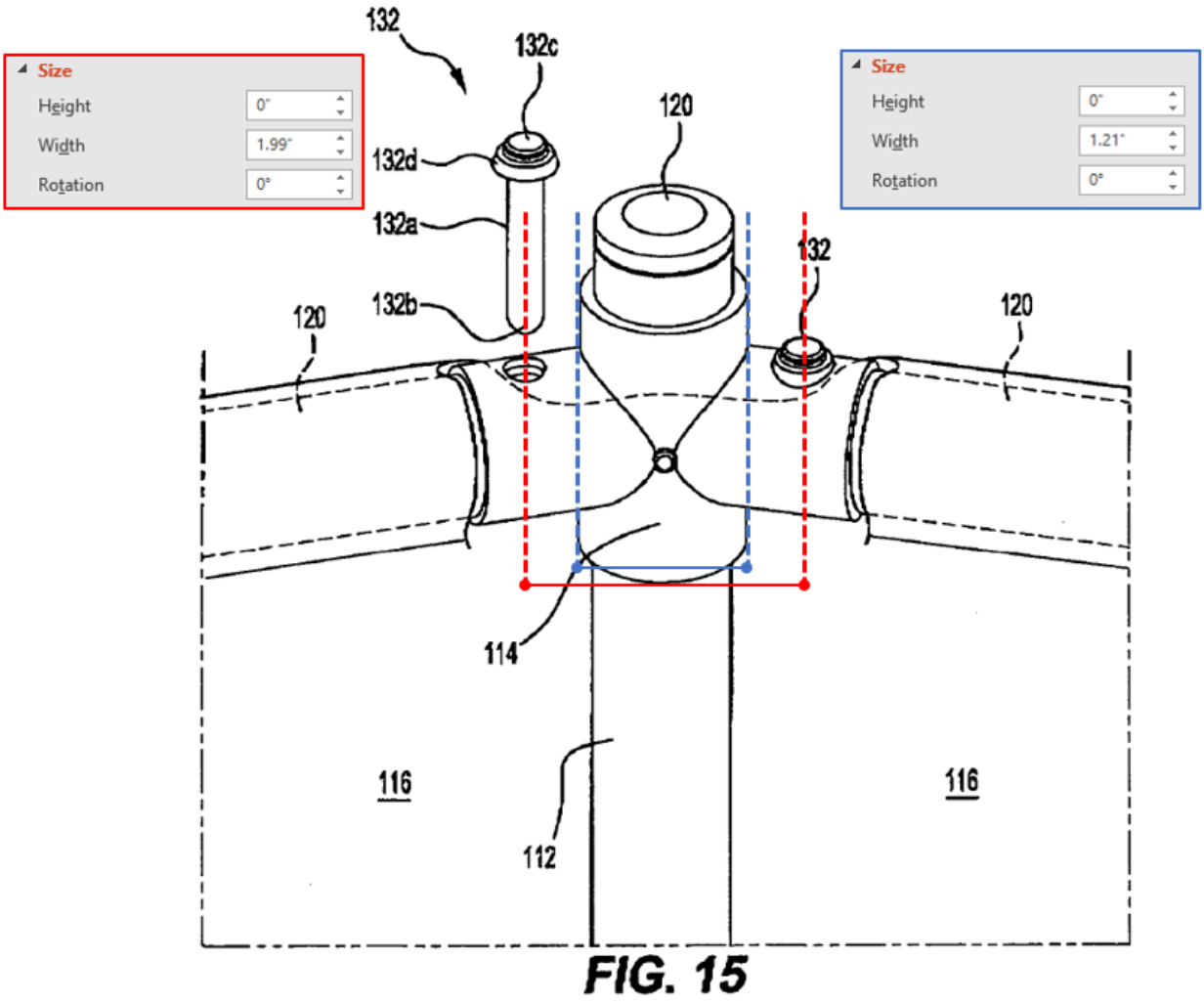



FIG. 15

EX1008, Fig. 15 (annotated); EX1002, ¶206

It would have been obvious to reduce the width of Liu's T-shaped connector 13 to be more of the size of Hunter's T-connector 114 in order to allow for a smaller gap in the liner, thus resulting in less water splashing through the gap in the liner. With Hunter's T-connector 114 in mind, routine experimentations and modifications of Liu's T-shaped connector 13 would naturally lead a POSA to try reducing the width between the pins of the T-shaped connector 13, which would allow for additional liner which would result in a reduction of overall size of the hole, but

wherein the pins would remain accessible. EX1002, ¶207. These routine experimentations and modifications would also include assuring the T-shaped connector maintains the ability to withstand the forces of the water, such as by including stiffening ribs or thickening the T-connector material. *Id*.

While in some circumstances patent drawings might not be relied on to show particular sizes (*see Hockerson-Halberstadt, Inc. v. Avia Group Int'l,* 222 F.3d 951, 956 (Fed. Cir. 2000)), that "[does] not mean that things patent drawings show clearly are to be *disregarded.*" *In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972) (emphasis in original). Instead, a patentability analysis should consider what the drawings in a reference "reasonably disclose and suggest to one skilled in the art." *In re Aslanian*, 590 F.2d 911, 914 (CCPA 1979). More particularly, a patent drawing may serve as prior art "without referring to the surrounding description" if "the prior art features are clearly disclosed by the drawing." *PlaSmart, Inc. v. Kappos*, 482 F. App'x 568, 572–73 (Fed. Cir. 2012) (citing *In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972). The court in *Mraz* affirmed an unpatentability determination, reasoning that the drawing alone clearly disclosed the claimed "inclined surfaces" at an angle "not exceeding 15 degrees" when a measurement of the groove in the Figure "measure[d] about 6 degrees on [the] drawing." *In re Mraz*, 455 F.2d at 1072.

The PTAB has discussed *Hockerson-Halberstadt* and *Mraz* at length. *See*, for example, IPR2020-01463 (Paper 27, Final Written Decision, pp.38-51.) There, after

a lengthy analysis of Federal Circuit precedent, the PTAB ultimately found the claims unpatentable and that there is "nothing improper in relying on Jones's relative horizontal and vertical dimensions" in the drawing to conclude that the drawing "has first and second sides that are longer than each of the third sides according to limitation [1j]." IPR2020-01463, p. 49.

Finally, Hunter is analogous art. It describes advantages of above-ground pools, including their ability to be disassembled and stored away. EX1008, [002]-[004]. Hunter's fence is assembled in similar fashion as a frame pool, and is modular so it can be disassembled and stored away just like an above-ground pool. *Id*., [005]-[006]. The fence can be sold together along with an above-ground pool as part of a kit. *Id*., [009], Claim 19. Moreover, Hunter was cited by the Applicant of the '512 Patent.[17] Ex1001; EX1003, p.468. Hunter is therefore analogous art in that it is in the same field of endeavor (*e.g*., above-ground pools and associated structures). It is also reasonably pertinent to the problems the '512 Patent faced (*e.g*., reducing the size of T-shaped joints) because similar to the '512 Patent, Hunter's fence has horizontal frame members, vertical frame members, and T-shaped joints, and describes and illustrates their relative dimensions and connections. EX1002, ¶208. Hunter would have "logically [] commended itself to an inventor's attention in

[17] "[T]he nature of the prior art listed in an information disclosure statement can be informative as to the field of endeavor." *Apple Inc. v Samsung Electronics Co., Ltd.*, 816 F.3d 788 (Fed. Cir. 2016), fn8.

considering his problem" of reducing the size of the T-shaped joint. *In re ICON Health and Fitness, Inc*., 496 F.3d 1374, 1379-80 (Fed. Cir. 2007) (concluding that "an inventor considering a hinge and latch mechanism for portable computers would naturally look to references employing other housings, hinges, latches, springs, etc., ... from areas such as a desktop telephone directory, a piano lid, a kitchen cabinet, a washing machine cabinet, a wooden furniture cabinet, or a two-part housing for storing audio cassettes."). EX1002, ¶208.

### B. Claim 4

#### 1. Element [4.0]

As explained in Ground 4 (*see* Motivation to Combine and Element [4.0]), Liu's "spring-loaded latch 15" has all the elements of the claimed "coupling assembly."

To the extent not expressly disclosed, a POSA would have found it obvious to use the spring-loaded latch 15 (instead of pins 14) to connect the T-shaped connector 13 to the *horizontal* support members 110, 111. EX1002, ¶¶210-211. This would have been obvious for several reasons, including those provided above with respect to Ground 4 (*see* Section X(A), Motivation to Combine). For example, Liu's Figure 30 discloses (or at a minimum, suggests) that its pins 14 and spring-loaded latch 15 are interchangeable, suitable methods for attaching frame members to the T-shaped joint. *Id*; EX1002, ¶151. Replacing the pins 14 with spring-loaded

latches 15 for connecting the horizontal support members would simplify assembly, and would have been a simple substitution of one known element (*i.e.* pins 14) for another (*i.e.*, spring-loaded latch 15) to obtain a predictable result of a quick coupling between the T-shaped connector 13 and the horizontal support members 110, 111. EX1002, ¶¶152-153, 211-212. A POSA would have had a reasonable expectation of success in interchanging the pins 14 and the spring-loaded latch 15. *Id.*

With the spring-loaded latch 15 connecting the T-shaped connector 13 to the first horizontal support member 110, the first joint portion would include a first coupling assembly including the spring-loaded latch 15 having the first pin, a first base, and a first helical spring supported by the first base.

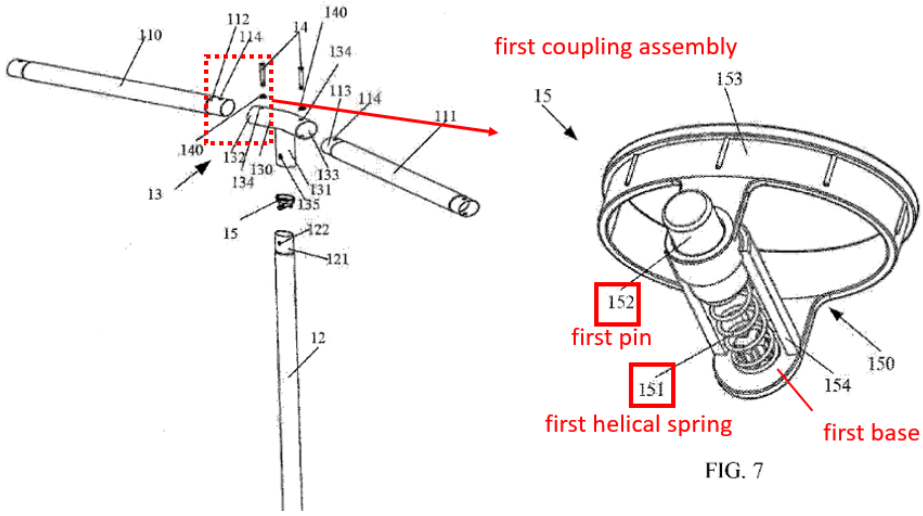



FIG. 7

EX1006, Figs. 4, 7 (annotated); EX1002, ¶213

**2. Element [4.1]**

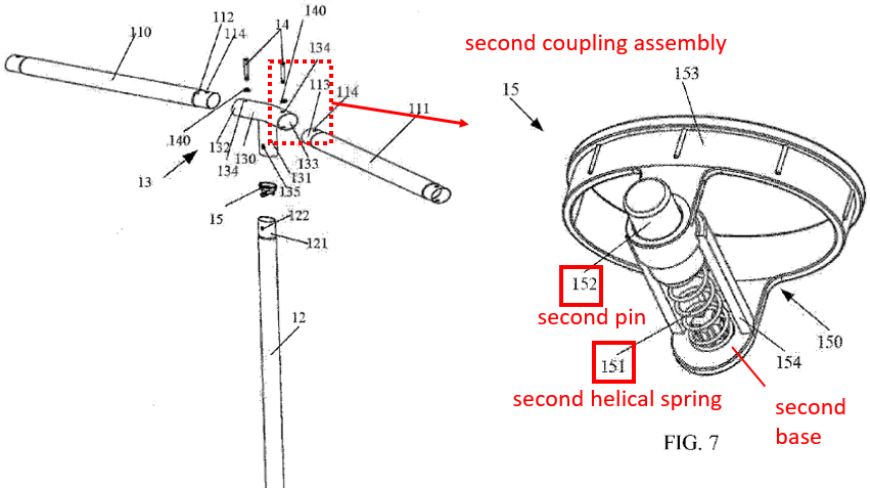
When the spring-loaded latch 15 is used to connect the T-shaped connector 13 to the first horizontal support members 110, the detent pin 152 would be biased

outwardly through both the positioning hole 134 of the T-shaped connector 13 and the positioning hole 114 of the first horizontal support member 110 to "snap lock" the first horizontal support member 110 to the T-shaped connector 13. EX1006, [0090], [0093]; EX1002, ¶213.

### C. Claim 5

#### 1. Element [5.0]

*See* Element [4.0] above. When the spring-loaded latch 15 is used to connect the T-shaped connector 13 to the second horizontal support member 111, the second joint portion includes a second coupling assembly including the spring-loaded latch 15 having a second pin, a second base, and a second helical spring supported by the second base.




EX1006, Figs. 4, 7 (annotated); EX1002, ¶216

Liu thus discloses Element [5.0].

#### 2. Element [5.1]

*See* Element [4.1] above. When the spring-loaded latch 15 is used to connect the T-shaped connector 13 to the second horizontal support member 111, the detent pin 152 would be biased outwardly through both the positioning hole 134 of the T-shaped connector 13 and the positioning holes 114 of the second horizontal support member 111 to "snap lock" the second horizontal support member 111 to the T-shaped connector 13. EX1006, [0090], [0093]; EX1002, ¶216. Liu thus discloses Element [5.1].

**D. Claim 6**

For reasons similar to Element [1.9], given the recognized problem of water exiting via liner gaps aligned with the T-shaped connectors, a POSA would have found it obvious to decrease the total width of Liu's T-shaped connector 13. EX1002, ¶218, 195-208.

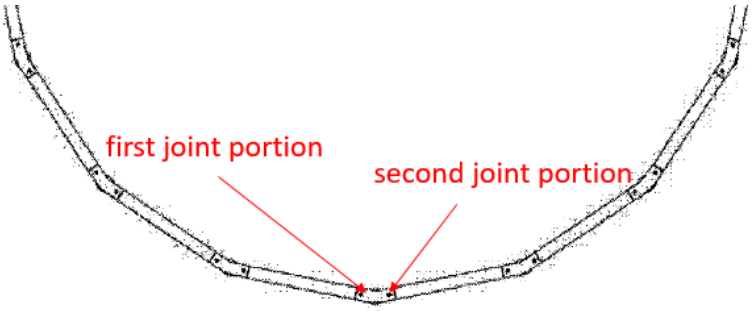
By simple visual inspection of Hunter's Fig. 15, a POSA would have immediately understood the width of the vertical joint portion of Hunter's T-connector 114 to be "about 70%" of the width between the pins 132. EX1002, ¶219. Moreover, it would be a simple structural rearrangement of parts, particularly when the underlying functionality remains the same, is generally considered to be an obvious matter of design choice. *In re Kuhle*, 526 F.2d 553, 555 (C.C.P.A. 1975); MPEP 2144.04. This is especially true given the '512 Patent does not define what is meant by "about 70%." Or, give any criticality to that percentage. *Id*.

**E. Claim 9**

*See* Elements [1.5]-[1.7] above. As shown in Liu's Figs. 4 and 12, for each T-shaped connector 13, the vertical tubular member 131 is centered on the horizontal tubular member 130 between the first and second joint portions. Liu specifically refers to the connector 13 as "T-shaped" throughout. EX1006; EX1002, ¶221.

**F. Claim 10**

Liu discloses: "The T-shaped connectors 13 couple two neighboring horizontal support members 11 … together to form a substantially circular ring structure (as best shown in FIG. 3)." EX1006, [0088]. A POSA would understand that since the horizontal support members 11 are linear, then the first and second horizontal joint portions of the T-shaped connectors 13 must form an obtuse angle in order to form the circular ring structure. EX1002, ¶223. Liu's Figure 3 shows just that.




EX1006, Fig. 3 (annotated)

In fact, general geometrical principles dictate the angle of the first and second joint portions is defined by 180-360/n°, where n is the number of horizontal or

vertical frame members in the frame pool. EX1002, ¶224; EX1009, [0059]. In Figures 1, 3, and 12, n=16 and thus the angle defined by the first and second joint portions is 157.5°, which is an obtuse angle. EX1002, ¶224.

**G. Claim 11**

Liu illustrates the T-shaped connector 13 as being a single piece, and therefore its horizontal tubular member 130 and vertical tubular member 131 are integrally formed as a single piece. See Elements [1.5]-[1.7] above. The T-shaped connector 13 "may be constructed from molded… plastic." EX1006, [0131]. The images used above in Element [1.7] demonstrate this clearly. EX1002, ¶226; *See Supra* XI. A. 8.

**H. Claim 12**

Figure 7 of Liu illustrates its latch 15 having ribs located at spaced intervals about the wall 153. A POSA would immediately understand these ribs to be reinforcing ribs in that they provide structural reinforcement to the wall 153. EX1002, ¶¶228-229.

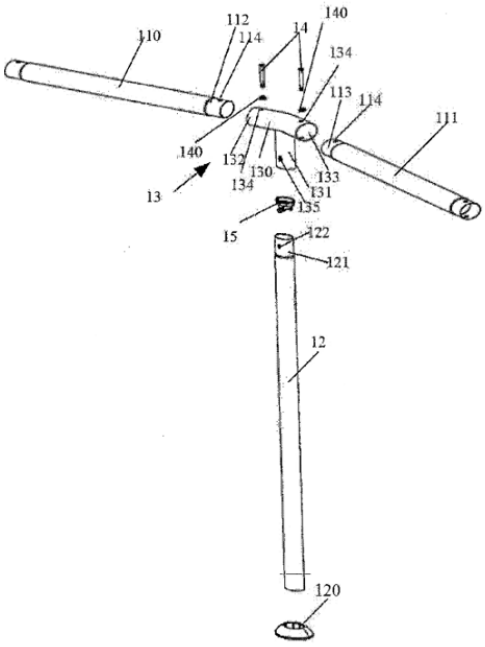



FIG. 4

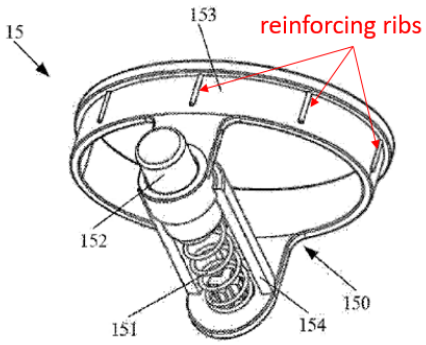



FIG. 7

EX1006, Figs. 4, 7 (annotated); EX1002, ¶230

"When the spring-loaded latch 15 is fitted into the end 121 of the vertical support member 12, the annular outer wall 153 of the pin boss 150 is embedded in the interior of the end 121 of the vertical support member 12." EX1006, [0094]. Therefore, when the spring-loaded latch 15 connects the vertical support member 12 to the vertical tubular member 131, the vertical tubular member 131 would surround and include these reinforcing ribs in its interior. EX1002, ¶230. The reinforcing ribs would also be oriented vertically (*i.e.,* parallel with the length of the vertical support member 12). *Id*.

Liu therefore discloses the vertical joint portion including at least one internal vertical reinforcing rib.

**I. Claim 13**

As demonstrated above with respect to Claim 12, Figure 7 of Liu illustrates its latch 15 having ribs located at spaced intervals about the wall 153. A POSA would immediately understand these ribs to be reinforcing ribs in that they provide structural reinforcement to the wall 153. EX1002, ¶232.

The spring-loaded latch 15 can be used for connecting the horizontal support members 110, 111 to the T-shaped connector 13. *See* Claim 4 above. When the spring-loaded latch 15 connects the horizontal frame member 110 to T-shaped connector 13, the horizontal joint portion of the T-shaped connector would surround and include these reinforcing ribs in its interior. EX1002, ¶233.

Liu therefore discloses at least one of the first joint portion and the second joint portion including an internal reinforcing rib.

**J. Claim 14**

*See* Claim 13 above. The same "ribs" described above can be referred to as support member as they support the wall 153, which in turn supports the base for the spring 151. EX1002, ¶235; *see* Element [4.0] above.

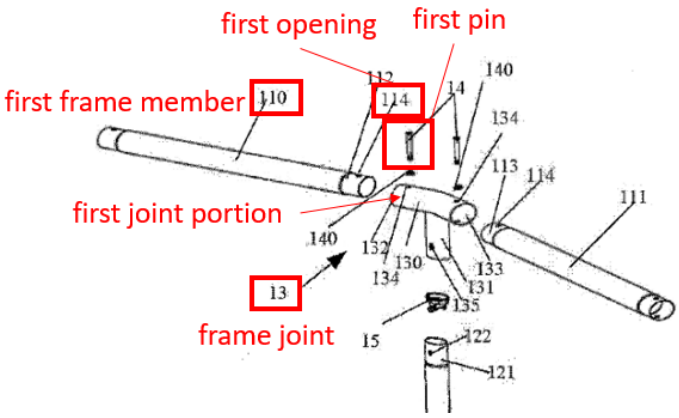
**K. Claim 15**

**1. Element [15.0]**

*See* Element [1.0] above. To the extent Element [15.0] is a limitation it is met by Liu.

**2. Element [15.1]**

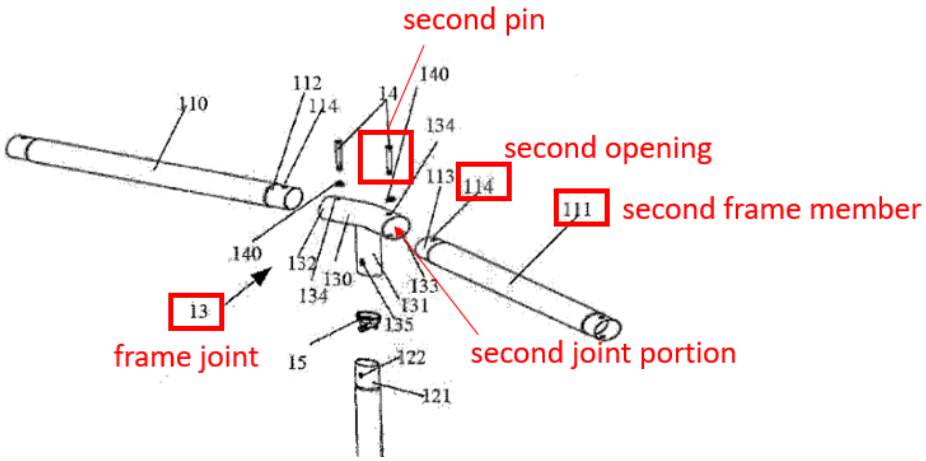
As set forth in Elements [1.4] and [1.5] above and with reference to the Figure below, Liu discloses coupling the first joint portion of the frame joint to the first frame member with a first pin configured to engage the first opening of the first frame member. EX1002, ¶¶237-240.




EX1006, Fig. 4 (annotated)

### 3. Element [15.2]

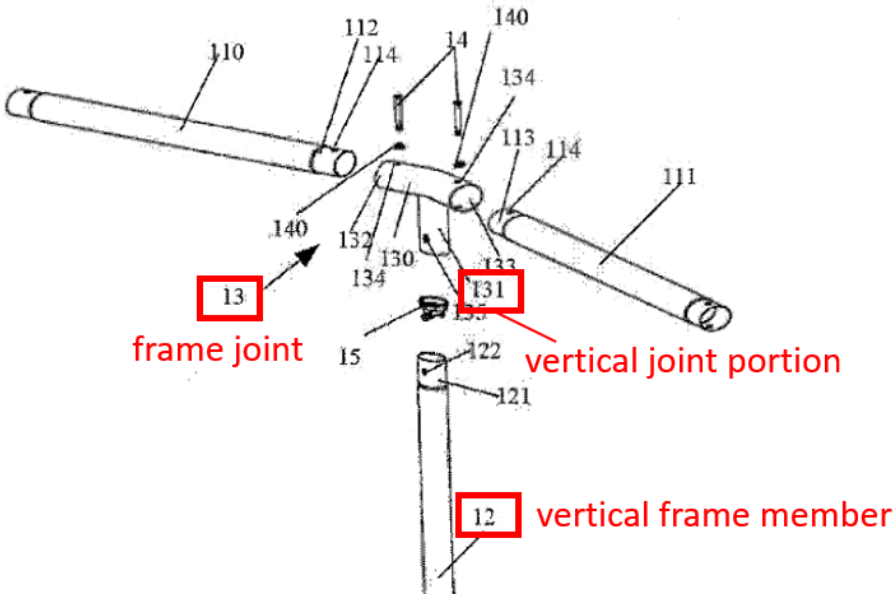
As set forth in Elements [1.4] and [1.6] above and with reference to the Figure below, Liu discloses coupling the second joint portion of the frame joint to the second frame member with a second pin configured to engage the second opening of the second frame member. EX1002, ¶¶241-244.




EX1006, Fig. 4 (annotated)

**4. Element [15.3]**

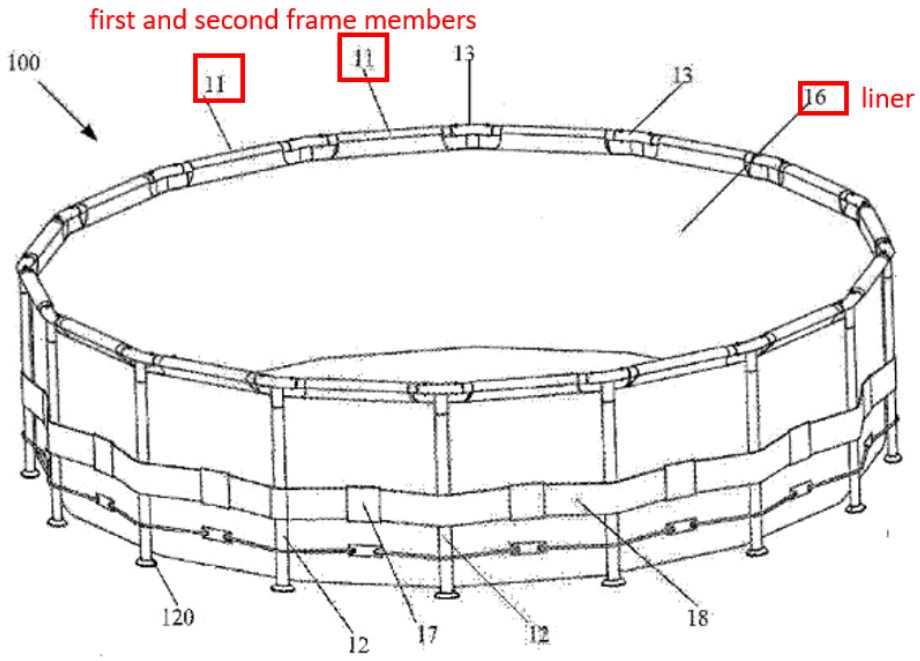
As set forth in Element [1.7] above and with reference to the Figure below, Liu discloses coupling the vertical joint portion of the frame joint to the vertical frame member. EX1002, ¶¶245-247.




EX1006, Fig. 4 (annotated)

**5. Element [15.4]**

As set forth in Element [1.8] above and as shown in the Figure below, Liu discloses positioning a liner around the first and second frame members.




EX1006, Fig. 12 (annotated)

**6. Element [15.5]**

*See* Element [1.9] above.

There is no practical difference between "at least 50%" in Element [1.9] and "a majority" in Element [15.5], and therefore the analysis provided above in Element [1.9] applies equally to Element [15.5]. EX1002, ¶249.

**L. Claim 16**

**1. Elements [16.0], [16.1], and [16.2]**

Liu teaches that the "horizontal support members 11 and the vertical support

members 12 each include an elongated tubular member with an elliptical cross-section." EX1006, [0085]. Likewise, the "horizontal tubular member 130 and the vertical tubular member 131 each have an elliptical cross-section." EX1006, [0087]. Therefore, all frame members 11, 12 and the respective portions of the T-shaped connector 13 have matching cross-sectional shapes. EX1002, ¶251.

To the extent this claim requires the first, second, and vertical joint portions to fit within the first, second, and vertical frame members respectively, this would have been an obvious design choice, or rearrangement of parts. *See* MPEP §2144 VI. Whether the frame members fit on the inside or the outside of the frame joint is a matter of design choice that does not impact the operation or structural integrity of the frame pool. EX1002, ¶252. The simple structural rearrangement of parts, particularly when the underlying functionality remains the same, is generally considered to be an obvious matter of design choice. *In re Kuhle*, 526 F.2d 553, 555 (C.C.P.A. 1975); MPEP 2144.04. This is especially the case here because the '512 Patent does not identify any criticality or unexpected result caused by first, second, and vertical joint portions fitting within the first, second, and vertical frame members respectively. It would have been a simple increase in diameter of Liu's vertical and horizontal support members – or a decrease in diameter of Liu's horizontal tubular member 130 – to make such a connection. In that configuration, the spring-loaded latch 15 would be fitted on the inside of the various tubular sections of the T-shaped

joint 13, rather than inside the horizontal and vertical support members to assure its pin 152 extends through both connecting parts. EX1002, ¶252.

### M. Claim 17

Liu states: "The various components of the support frame of the present invention may be constructed from molded… plastic." EX1006, [0131]. The support frame 10 includes the T-shaped connector 13 (*id*., [0085]), and therefore its horizontal tubular member 130 and vertical tubular member 131 may be constructed from molded plastic. EX1002, ¶254.

### N. Claim 18

#### 1. Elements [18.0] and [18.1]

*See* Elements [4.0] and [4.1] above. To assemble the frame pool, the latch 15 has a helical spring 151 that biases a pin 152 outwardly through an aperture 122 of the vertical support member 12 and an aperture 135 of the T-shaped connector 13 to "snap-lock" the T-shaped connector 13 to the vertical support member 12. EX1006, [0090], [0094]-[0095]; EX1002, ¶256. When the latch 15 is used for connecting the horizontal support members 110, 111 (*see* Claim 4 above), this would include a depression of the pin 152 to fit the latch into the T-shaped connector 13, and then a release of the pin 152 as it is extended through positioning holes 134. The process would be repeated for connecting both horizontal support members 110, 111 to the T-shaped connector 13 utilizing the spring-loaded latch 15. EX1002, ¶256.

## XII. FEES

The required fees are submitted herewith. If any additional fees are due during this proceeding, the Patent Office is authorized to charge such fees to Dickinson Wright's Deposit Account No. 04-1061.

## XIII. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

### A. Real Party-in-Interest

Petitioner certifies that the real parties-in-interest are: Bestway USA, Inc. and Bestway Global Holding, Inc.

### B. Related Matters

Petitioner is not aware of any judicial or administrative matter that would affect, or be affected by, a decision in this proceeding.

### C. Lead and Back-Up Counsel

Petitioner provides the following designation of counsel.

| LEAD COUNSEL | BACKUP COUNSEL |
|---|---|
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## D. Service Information

Please address all correspondence/service to all counsel listed above.

Dated: June 15, 2024

Respectfully submitted,

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Attorney for Petitioner

**Certificate of Service 37 CFR §§ 42.6(e) and 42.105(b)**

The undersigned certifies that on June 15, 2024, I will cause true and correct copies of the foregoing Petition for Post Grant Review, and all associated exhibits or appendices referred to therein, to be served via FedEx Overnight to patent counsel of record at:

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Faegre Drinker Biddle & Reath LLP
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Indianapolis, IN 46204

Respectfully submitted,

/John S. Artz/
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Dickinson Wright PLLC

**Certificate of Compliance Pursuant to 37 C.F.R. § 42.24**

This paper complies with the type-volume limitation of 37 C.F.R. § 42.24. This paper contains 17,176 words, excluding the parts of the paper exempted by 37 C.F.R. § 42.24(a).

This paper also complies with the typeface requirements of 37 C.F.R. § 42.6(a)(ii) and the type style requirements of 37 C.F.R. § 42.6(a)(iii)&(iv).

Dated: June 15, 2024

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