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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CINMAR, LLC and
FRONTGATE MARKETING, INC.
Petitioners

v.

RICHELL USA, INC.
Patent Owner

Case No. IPR2020-00210

Patent No. 7,568,449

EXHIBIT 1002
DECLARATION OF TODD S. VENTROLA

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I, Todd S. Ventrola, declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

1. I understand that Cinmar, LLC (“Cinmar”) and Frontgate Marketing, Inc. (“Frontgate”) are petitioning the U.S. Patent and Trademark Office for an *inter partes* review (“IPR”) of claims 1-3, 5-21 and 24-36 of U.S. Patent No. 7,568,449 (“the ’449 patent”) (Ex. 1001). I have been retained by Cinmar and Frontgate to offer technical opinions on the ’449 patent and on certain prior-art references relating to its subject matter. The ’449 patent generally relates to a freestanding, adjustable, multi-panel pet barrier.

2. I have more than 30 years of experience in mechanical engineering and design. Since 2012, I have been Director of Research and Development – Mechanical Engineering for Hill-Rom Holdings, Inc. (“Hillrom”) in Batesville, Indiana, where I oversee four functional teams of 30 professionals (mechanical engineering, simulations, model shop, detailer/drafters) in the mechanical design, research, and development of patient support systems such as hospital beds, stretchers, and patient lift systems. In this role, I have authored internal guidance documents, including on design, manufacturing, and assembly best practices, which are used by Hillrom’s global research and development teams. I also oversee the use of multi-physics simulation, including finite element analysis, computational fluid

dynamics (cfd) and thermal analysis, to promote early design optimization. I also mentor seasoned and junior engineers on plastic part design and materials selection.

3. From 2010 to 2012, I was Director of Engineering and Design for Confluence Watersports (now known as Confluence Outdoor) in Greenville, South Carolina. In that role, I led a team of 12 professionals in the strategic development, innovation, and launch of personal non-motorized watercraft and accessories. I also changed my team's organization matrix from an isolated group of engineers, industrial designers, and marketing and project managers to cross-discipline product-development brand teams, resulting in better communication and efficiency. I also established design and documentation standards and disciplines, building efficiency into the development process.

4. From 2001 to 2009, I worked at Evenflo Inc., first as a Senior Project Engineer in Vandalia, Ohio (2001 to 2003) and then as an Engineering Manager in Miamisburg, Ohio (2004 to 2009). In 2001, I joined Evenflo's "Playtime" team, where I managed and designed multiple injection-molded electromechanical projects, varying in complexity, from concept to production. When I was promoted to Engineering Manager in 2004, I took on greater responsibility for the design and development of Evenflo's "Playtime" and "Feeding" products. I also was involved in the strategic design and development of Evenflo's "Gateway" product line, a series of twelve new and redesigned child barriers.

5. From 1985 to 2000, I worked at Kenner Toys (which in 1991 was purchased by and became known as Hasbro Toys) in Cincinnati, Ohio. I was a product development engineer in the Boys Toys division, where I worked on the design and execution of toys for iconic brands such as Star Wars, Nerf, GI Joe, Tonka, Jurassic Park, and Play-Doh. Based on my high performance at the company, I was promoted to the Special Projects Team, a select group which was responsible for the development of the company's most complex, time-sensitive projects.

6. While working full-time, I earned a Bachelor of Science in Mechanical Engineering Technology from the University of Cincinnati in 1999 and a Master of Business Administration from Indiana Wesleyan University in 2008.

7. I also am a named inventor on six published United States patents and patent application publications:

Number	Pub. Date	Title
D465,440	Nov. 12, 2002	Orbital Infant Exerciser
7,333,627	Feb. 19, 2008	Auxiliary Playpen Speaker
7,716,874	May 18, 2010	Expandable Gate
8,225,970	July 24, 2012	Infant Carrier Buckle
2018/0000633	Jan. 4, 2018	Microclimate Management System with Wireless Sensors

2018/0214091	Aug. 2, 2018	Modular Monitoring Smart Bed
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8. My resume, which is **Attachment 1** to this declaration, contains a more detailed description of my background.

9. I am being compensated at a consulting rate of \$225 per hour for my technical analysis in this matter. My compensation is hourly and is not dependent in any way on the outcome of this matter. I have no financial interest in Cinmar and Frontgate. I similarly have no financial interest in the '449 Patent and have had no contact with the named inventors of the '449 Patent.

II. MATERIALS REVIEWED

10. In forming my opinions, I have reviewed the following:

Exhibit No.	Description
1001	U.S. Patent No. 7,568,449 to Hirokawa (“the '449 Patent ”)
1004	U.S. Patent No. 5,058,863 to Maffet (“ Maffet ”)
1005	U.S. Patent No. 2,369,552 to Ferran (“ Ferran ”)
1006	U.S. Patent No. 6,123,321 to Miller (“ Miller ”)
1007	A web publication depicting and offering for sale a pet barrier on Richell Corporation’s website as least as early as October 2004 and its translation (the “ Richell 2004 Website ”)
1009	U.S. Patent No. 6,918,640 to DeMars (“ DeMars ”)

1010	Japan Design Patent No. 929,649 (“the JP D649 Patent ”)
1011	A 2003-2004 “Pet Goods” Catalog issued by Richell Corporation in February 2003 (the “ Richell 2003 Catalog ”)
1015	U.S. Patent No. 135,837 to Overholser (“ Overholser ”)
1016	U.S. Patent No. 3,627,272 to Friedberg (“ Friedberg ”)
1017	U.S. Patent No. 5,356,119 to Schock (“ Schock ”)
1018	United Kingdom Patent No. 679,297 to Tubular Construction Systems (“ Tubular Construction Systems ”)
1019	Dutch Patent No. 67750 to Thijssen (“ Thijssen ”)
1020	U.S. Patent No. 5,779,227 to Elkins (“ Elkins ”)
1021	United Kingdom Patent No. 1,098,201 to Appleby (“ Appleby ”)
1022	United Kingdom Patent No. 2,063,956 to Hague (“ Hague ”)
1023	U.S. Patent App. Pub. No. 2004/0173325 to Maas (“ Maas ”)
1024	U.S. Patent No. 6,598,649 to Moore (“ Moore ”)
1025	U.S. Patent No. 3,871,435 to Lopatka (“ Lopatka ”)
1027	U.S. Patent Application Publication No. 2001/001140 (“ Nakamoto ”)

III. THE LAW

A. Obviousness Analysis

11. I understand that a patent claim is invalid as obvious if the differences between the patented subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

12. I further understand that a person of ordinary skill in the art is a person of ordinary creativity, not an automaton, and in many cases a person of ordinary skill will be able to see how teachings of multiple patents can be fit together like pieces of a puzzle. I understand that the obviousness analysis is flexible, taking into account the interrelated teachings of several patents, the effects of demands known to the design community or present in the marketplace, and the background knowledge of a person of ordinary skill in the art. I understand that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

13. I have been instructed that an obviousness inquiry requires a four-step analysis involving the so-called *Graham* factors:

(1) determining the scope and content of the prior art;

(2) ascertaining the differences between the prior art and the claims at issue;

- (3) resolving the level of ordinary skill in the pertinent art; and
- (4) evaluating objective considerations of non-obviousness.

14. I understand that once these determinations have been made and the evidence supporting each factor considered, a conclusion is made of whether or not the invention, considered as a whole, would have been obvious to one having ordinary skill in the relevant art at the time that the alleged invention was made.

15. I understand that it is not permissible to use hindsight in assessing whether or not the claimed invention is actually invalid for obviousness. One cannot look at the invention knowing what persons of ordinary skill in the art know today. Rather, one must place oneself in the shoes of a person having ordinary skill in the field of technology of the patent at the time the invention was made.

B. Level of Ordinary Skill in the Art

16. To determine the level of ordinary skill in the field of art, I have been instructed that there are no particular set of factors to be considered that is exhaustive, and I have been instructed to consider the following, to the extent that I can, in opining on the level of ordinary skill in the field of art pertaining to the '449 patent:

- (1) The educational level of the inventor;
- (2) Types of problems encountered in the art;
- (3) Prior art solutions to those problems;

- (4) Rapidity with which innovations are made;
- (5) Sophistication of the technology; and
- (6) Educational level of active workers in the field.

C. Objective Considerations of Non-Obviousness

17. On the fourth factor in the obviousness determination, specifically the consideration of “objective considerations” of non-obviousness, I have been told that some of the factors that may be considered are those of copying, a long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention was made. I am not aware of any evidence of such secondary considerations, but I reserve the right to reply to and rebut any attempt by the patent owner to set forth or argue such evidence or considerations.

D. Claim Construction

18. I understand that in an *inter partes* review at the Patent Office, claims are generally to be given their ordinary and customary meaning, as they would be read by a person of ordinary skill in the relevant art at the time of invention. I understand that the application giving rise to the '449 Patent was filed on November 16, 2005, but claims priority to an application filed on November 24, 2004. My views on the meaning of the terms of the challenged claims are the same regardless

of the time-frame considered. For the avoidance of doubt, any reference to the considerations, knowledge, or applications of a person of ordinary skill in the art addressed in this report are made with respect to the November 2004 timeframe.

IV. LEVEL OF ORDINARY SKILL IN THE ART

19. My opinions regarding the level of ordinary skill in the art for the '449 Patent is made with respect to the time around November 24, 2004. As discussed above, at the time of the invention, I was the Engineering Manager at Evenflo, responsible for the design and development of Evenflo's "Playtime" and "Feeding" products. I also was involved in the strategic design and development of Evenflo's "Gateway" product line, a series of twelve new and redesigned child barriers. At that time, the average level of education and experience for my colleagues working with me with respect to the designs of such child barriers would be an engineering degree (such as a bachelor of science in mechanical engineering or a bachelor of science in mechanical engineering technology) and about 5 years of experience in developing mechanical commercial products (such as baby products, barriers and the like). Nevertheless, it is my opinion that a person with a reasonable level of mechanical aptitude or a person of having a reasonable level of craftsmanship abilities along with several years' experience as a craftsman would be capable of developing a barrier as disclosed and claimed in the '449 Patent (e.g., an experienced wood-worker, a mechanical tinkerer having mechanical aptitude, or a person who has

designed or built furniture or similar items, such as a carpenter). It is my opinion that developing a barrier for a pet consists of a simple architecture of a main front panel or panels, which may adjust according to the desired width, and side-supporting features that prevent bi-directional tipping. It is my opinion that a craftsman such as a carpenter having average skill would have been motivated and able to develop a barrier product as claimed in the '449 Patent. Likewise, it is my opinion, based on my experience, that barriers similar to those disclosed and claimed in the '449 Patent are very common. The '449 Patent claims many features commonly found in barriers dating back decades before November 24, 2004. Consequently, it is my opinion that a person of ordinary skill in the art for the products disclosed and claimed in the '449 Patent (as of November 24, 2004) would have an associate degree in an engineering field or about six months' experience designing and/or building mechanical-based consumer products; alternatively, such a person of ordinary skill in the art would be a craftsman such as a carpenter having average skill.

20. Additionally, during my time at Evenflo, I was tasked with designing a standalone child gate having similar features of supporting an adjustable main front panel with opposing supports on either side of the front face. However, given the fact the children have a greater propensity to overcome barrier-type products using physical force and intelligence, the design was not well-suited to restricting an active

toddler access to rooms but would have been well-suited as a pet barrier. A person of ordinary skill in the art would be aware of art outside the strictly household barrier field, as the mechanical elements claimed in the '449 Patent are common. Specifically, in my opinion, a person of ordinary skill in the art would have been aware of the state of the art in barriers, gates, and structures in our environment that demonstrate the bi-directional support of a vertical panel or wall like crowd-control barriers, standalone fencing, store-sign displays, room dividers, and road-construction barriers.

V. BACKGROUND OF THE ART

21. I will now address types of problems typically confronted in the design of products similar to those described in the '449 Patent. It is my opinion that some of the typical challenges when developing barriers are understanding customer needs (which in business is often called voice of the customer), development costs, manufacturing, sales channels, materials, sourcing, market acceptance, financing, developing a business plan, and the like. Understanding the mechanical connections of elements described and claimed in the '449 Patent is not a challenge, as they have been common knowledge for many decades. It is my opinion that the features disclosed and claimed in the '449 Patent are elementary, simple, have existed for decades, and merely implement known features using common mechanical principles. As I discuss below, freestanding, multi-panel barriers (useful as both

child barriers and pet barriers) having adjustable-width front barriers and/or support legs have existed for decades prior to the '449 Patent. Moreover, adding legs to freestanding, multi-panel barriers to increase the stability of the barriers is and would have been trivial to a person of ordinary skill in the art.

22. For example, Maffet discloses a multi-panel child or pet barrier with modular panels and discloses that an adjustable-width panel design may be a type of modular panel that can be incorporated into the multi-panel barriers; Ferran discloses a multi-panel child barrier with an adjustable-width front barrier designed for use in a car or on the floor; the Richell 2004 Catalog and the Richell 2003 Website disclose prior-art, multi-panel, freestanding pet barriers and door-mounted pet barriers that include most of the elements claimed in the '449 Patent such as the designs and layouts of the vertical and horizontal wires, gates built into the panels, the height of the barrier, the ability to dis-assemble the barriers for shipping and transport, rubber feet interfacing with the floor, hinged side panels, and the like. As discussed below, it is my opinion that the products disclosed and claimed in the '449 Patent are not inventive, as they merely take and use long-known, freestanding, open-configuration child and pet barrier designs and components and then incorporate their own prior art design aspects into these old barrier designs.

23. It is my opinion that most of the design considerations, especially from a structural and mechanical perspective, that go into designing child barriers are

relevant and apply directly to the design of pet barriers and vice versa. Of course, there are some minor exceptions – designers of child barriers may not be concerned that the child will try to chew through the panel materials (as a pet might), and the designers of pet barriers may not be concerned that the pet will figure out how to open a gate latch (as a toddler might). In my experience, most of the Evenflo child barriers with which I was involved were also commonly used as pet barriers. To a consumer, a barrier is a barrier, regardless of whether the manufacturer designs it to restrain or enclose a pet or child.

24. For example, while working at Evenflo, one of my projects concerned adapting the design of a child barrier to be marketed as a pet barrier. This project involved converting an existing child barrier (called the Position and Lock Tall Gate) to a pet barrier. The existing 32” tall child-barrier model was shortened to 23” in height, the wood frame was stained brown, and the barrier was rebranded as the ASPCA Pressure Mounted pet barrier. This project had low design complexity and was easily executed.

VI. THE '449 PATENT

25. The '449 Patent is directed to an indoor barrier “which prevents pets from entering designated areas of the home.” Ex. 1001 at Abstract, 1:23–25. The barrier is not “attached to and detached from a pillar or wall.” *Id.* at 1:35. Instead, it is “self-supported” by “a front panel,” “two side panels,” and at least one “leg”:

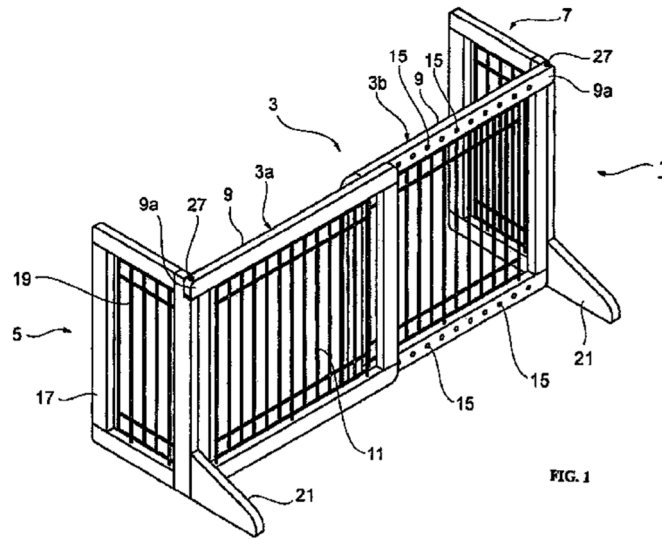


FIG. 1

Id. at Abstract, cl. 1, 20, Fig. 1.

26. In some embodiments of the invention, the front panel, side panels, or leg “comprise floor contacting surfaces.” *See, e.g., id.* at 3:11-14, 5:66-6:3, cl. 1, 20, Fig. 6. The “floor contacting surface,” in turn, may include “a friction-increasing member.” *See, e.g., id.* at 3:11-14, 5:66-6:3, cl. 1, 20, Fig. 6. And in some embodiments, “at least one leg” is “configured to extend from only one side of the front barrier” and not to “obstruct” or “impede” the “path of a pet”:

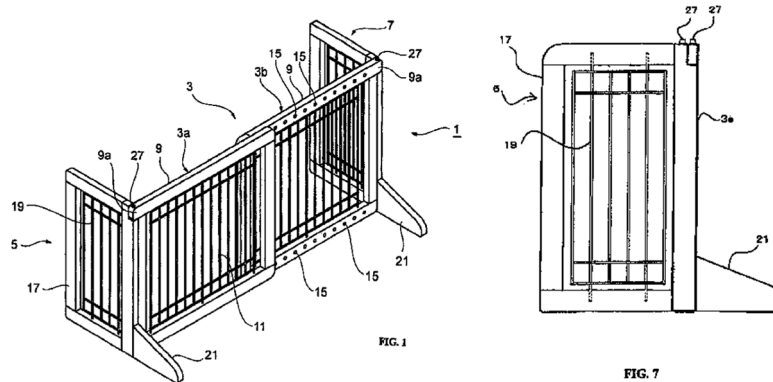
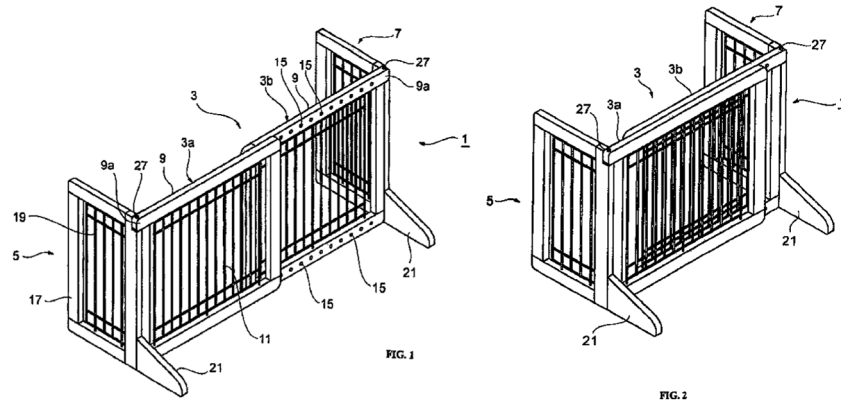


FIG. 1

FIG. 7

See, e.g., id. at 5:2-3, cl. 1, 20, Figs. 1, 7.

27. Some embodiments include two overlapping front panels “configured to be coupled” to form a “front barrier” with an “adjustable” width:



See, e.g., id. at 6:36-39, cl. 1, 20, Figs. 1–2.

28. And in some embodiments, the front panels are “interrupted by substantially vertical members with only the substantially vertical members in a central three-fifths portion of the open space.” *See, e.g., id.* at 3:20-23, 4:20-23, 4:66-67, cl. 1, 6, 13, 35, Fig. 4. They may be “further interrupted by at least one substantially horizontal member in the bottom or top one-fifth of the open space”:

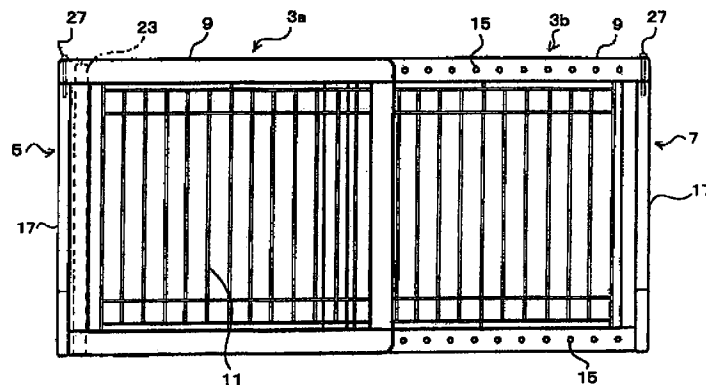
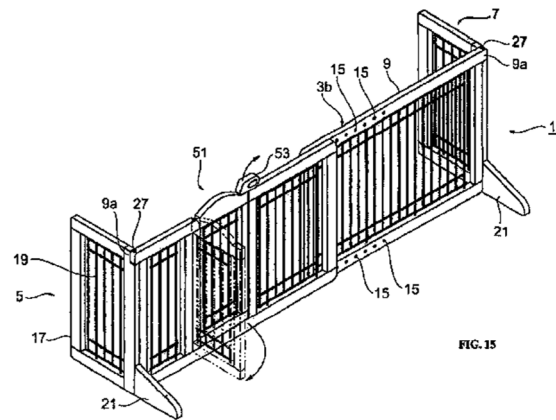
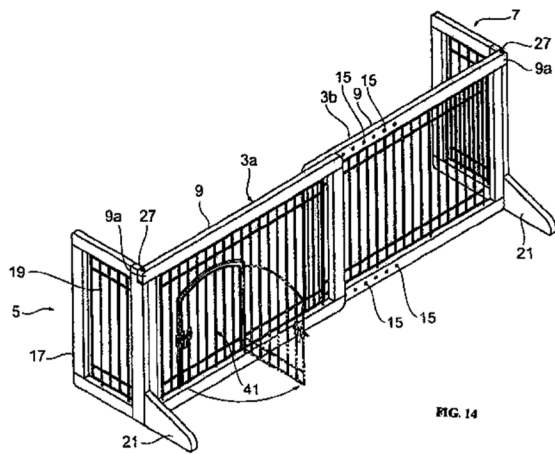


FIG. 4

See, e.g., id. at 4:18-20, cl. 1, 6, 14, 15, 16, 17, 35, 36, Fig. 4. Other claims add that the front barrier “has a height of 65 cm or less,” that “the substantially vertical members are wires,” or that the panels’ “circumferential frame is substantially rectangular.” *See, e.g., id.* at 3:33-35, cl. 8.

29. In some embodiments, the front panels include a “gate.” *See, e.g., id.* 3:36-38, 3:43-45, 6:40-42, 6:48-50, cl. 9, 10. The “gate” may be “configured to open so as to allow a pet or a person to pass through” it. *See, e.g., id.* at 6:48-50, cl. 9, 10. It may also “extend the entire height of” at least one of the front panels. *See, e.g., id.* at 3:43-45.



Id. at Figs. 14–15.

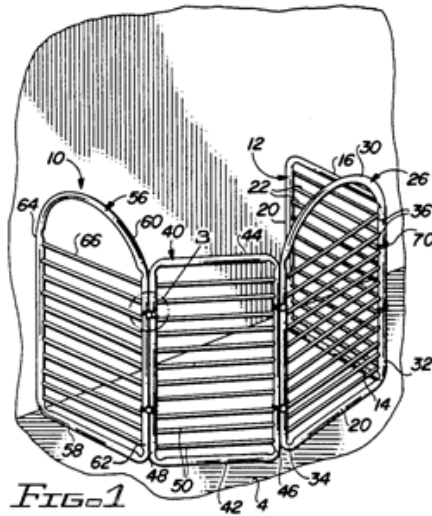
VII. THE PRIOR ART

A. Stand-Alone, Multi-Panel, Child/Pet Barriers

1. Maffet (Ex. 1004)

30. U.S. Patent No. 5,058,863, which issued October 22, 1991 to Maffet, is titled “Panel apparatus and elements for securing a plurality of panels together.” Maffet discloses a system comprising several “panel elements which may be secured together” to form structures such as “enclosures for pets, a playing area for a small child, a gate for preventing children and/or pets from straying from a particular room or area, and the like.” Ex. 1004 at 1:15–19. Maffet’s panel system allows the plurality of panels to “be assembled together to define virtually any type of structure desired by a user.” *Id.* at 1:29-32. And the disclosure of Maffet provides a roadmap to a person of ordinary skill in the art to assemble the panels into an adjustable, freestanding pet barrier as claimed in the ’449 Patent.

31. Maffet’s disclosure aimed to describe a “panel apparatus including a plurality of generally identical panels secured together to define enclosures in which children and animals may be kept.” *Id.* at 1:62-65. One of Maffet’s specific teachings, referencing FIG. 1, is “an enclosure made of four panels . . . disposed on a floor”:

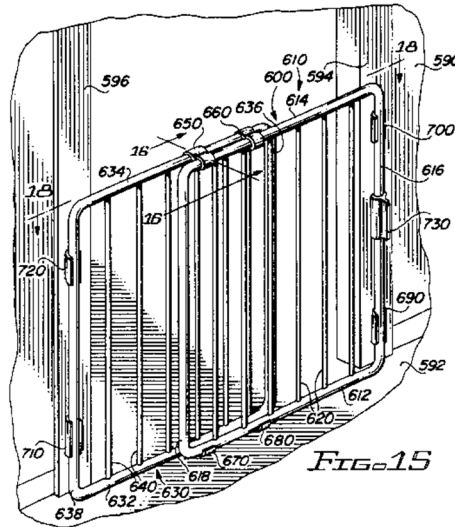


Id. at 2:49–54, Fig. 1.

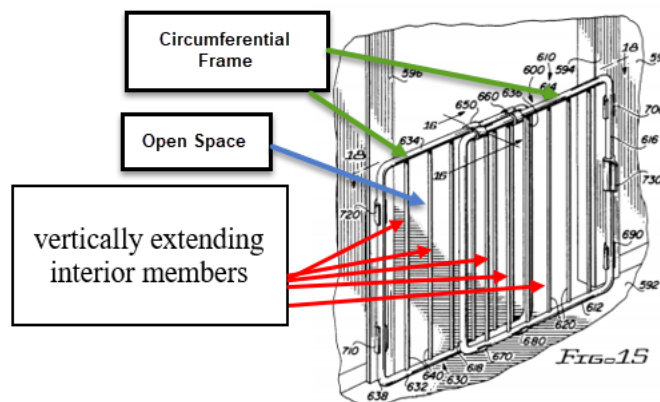
32. While Maffet depicts the freestanding, four-panel barrier “disposed against a wall” to form an enclosure with the wall, nothing in Maffet indicates that the barrier is attached or secured to the wall. A person of ordinary skill in the art would understand that the freestanding Maffet barrier could just as easily be disposed as a barrier to preclude a pet from accessing a room. And the barrier itself forms an open configuration; the wall is not part of the barrier. Each of the panels is “moveable relative to adjacent panels.” *Id.* at 3:4-5.

33. Maffet discloses several types of panels but teaches that one type of panel can simply be substituted for another type of panel. *Id.* at 4:1-6 (“The panel 80 is different from the panels 12, 26, 40, and 56 primarily in that its inner members are horizontal, rather than vertical, as has been pointed out. However, the panel 40 is also shown in FIG. 2 in phantom. Thus, different types of panels may be secured together, as desired.”).

34. Maffet proceeds to teach that any pair of its panels may be “secured together to comprise a gate panel assembly”:



Id. at 11:23–25, Fig. 15. I have labeled Fig. 15 to point out subject matter claimed in the '449 Patent:



The two panels of Fig. 15 “are disposed adjacent to each other in an overlapping manner” so that “their combined length may be as desired.” *Id.* at 12:14–16.

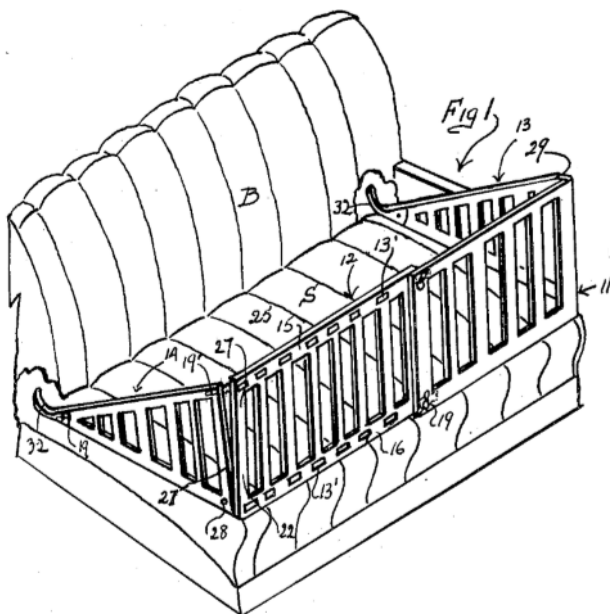
35. Maffet further teaches that panels used to make the freestanding enclosure can be used to make the gate panel assembly. *Id.* at 11:52-59 (“Moreover,

the general structure of the panels 610 and 630 is substantially identical to the panels discussed above in conjunction with the other embodiments of the present invention in that the panels of made of outer frame members with interior members, either vertical or horizontal, as desired, or as appropriately oriented, extending between a pair of the outer frame members.”); cl. 1, 4. A person of ordinary skill in the art, reading Maffet, would, therefore, understand that Maffet’s panel configurations are interchangeable and that several panel features could easily be combined, given the interchangeability of the Maffet panels. Accordingly, Maffet provides a roadmap for combining two of the panels in the freestanding enclosure in an overlapping, adjustable-length manner, to arrive at a freestanding, adjustable-length barrier comprising two side panels. A person of ordinary skill in the art would at once envisage such a combination. Indeed, following Maffet’s roadmap, I have created a rendering of what Maffet’s freestanding barrier in Fig. 1 looks like when the front panels are substituted with the overlapping barrier of Fig. 15 and the side panels are constructed using panels with vertical interrupting members:



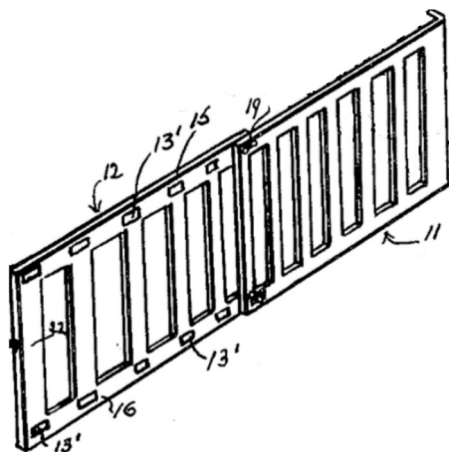
2. Ferran (Ex. 1004)

36. U.S. Patent No. 2,369,552, which issued February 13, 1945 to Ferran, is titled “Child’s enclosure.” Ferran discloses “an adjustable enclosure” usable either in an automobile “or upon the ground or upon a floor,” allowing a child “to move about but protect[ing] him from falls or wandering away”:



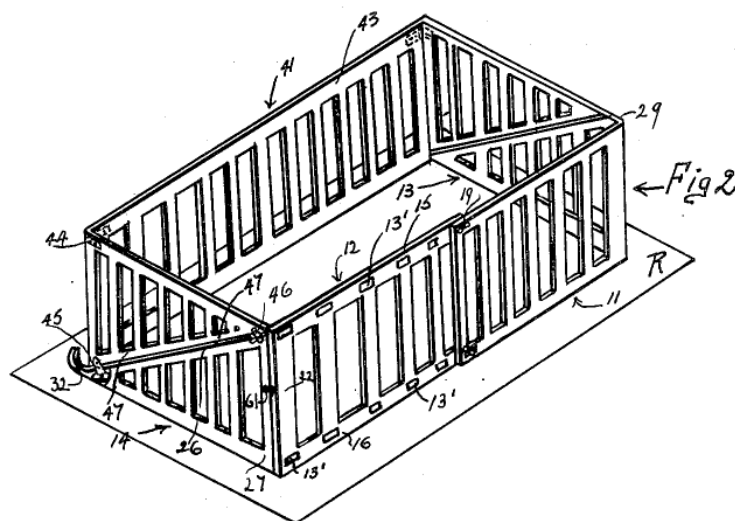
Ex. 1004 at 2:25–31, Fig. 1. The front panels include rectangular frame defining an open space with only vertical members extending the entire height of the open space.

37. The enclosure is “adjustable” because it contains “a number of oblong slots” in the front panel, allowing the enclosure to be “narrowed at will.” *Id.* at 4:14–20, Fig. 2.



Id. at Fig. 2 (cropped). The enclosure restrains the child from moving beyond the enclosure because, preferably, “all enclosing members” are “firm and rigid and adapted to be disposed and rigidly maintained vertically.” *Id.* at 4:3–5, Fig. 2.

38. In addition to being used as a child enclosure, Ferran may be used as a pet barrier. Although Ferran discloses a primary enclosure adapted for use on a car seat, Ferran further discloses that the primary enclosure can be used on a floor:



Id. at Fig. 2. When the enclosure is used on the floor, a “supplementary enclosing device” to build a four-sided enclosure is preferred. *Id.* at 3:58–62. But Ferran

emphasizes that this device “is not necessary” because “the primary enclosure is complete in itself and may be used alone.” *Id.* at 5:54–62, 7:14–16. A person of ordinary skill in the art would understand from this disclosure that the supplementary device was an optional addition in case the user wanted a closed enclosure. As Ferran teaches, however, the supplementary device is unnecessary to provide a functioning barrier, and the primary barrier would still be effective at preventing access to the other side of the barrier. I have provided a rendering below showing how Ferran’s primary enclosure could be used as a pet barrier:



39. Ferran describes in detail a structure that a person of ordinary skill in the art would immediately recognize could be used as a barrier separating two areas. There is no structural significance to describing Ferran as an enclosure for children. The same structure could be used as a barrier for pets without any modification. Ferran itself equates a barrier to an enclosure: “Figure 2 is an isometric view of an

enclosure placed upon a flat surface as for example a rug upon a floor and forming a complete quadrilateral rigid perpendicular barrier.” *Id.* at 3:6-9.

3. The Richell Publications (Ex. 1007, 1008, 1011)

40. Richell Corporation promulgated printed publications depicting and offering for sale prior-art pet barriers online as early as October 2004 and through a catalog as early as February 2003 (the “Richell 2004 Website” and the “Richell 2003 Catalog,” respectively; together, the “Richell Publications”), including the barrier depicted below. *See* Ex. 1007, 1008, 1011. As illustrated below, the barrier included an internal gate:



Ex. 1007 at 1; Ex. 1011 at 3.

41. Richell offered the barrier for sale in various sizes, including one with a height of 60.5 centimeters:

小・中型犬用 体重目安：4～20kg



ペット用木製サークル90-60D

¥13,500 入数 2

●サイズ/90×61×60.5H(cm)

●包装サイズ/91.5×11×62.5(cm)

●材質/フレーム部：ラバーウッド

ワイヤー部、他：スチール（ポリエステル塗装）

滑り止めゴム部：TPE樹脂

JANコード 4973655 89291-6



Wooden circles for pets 90-60 D

13,500 yen Quantity: 2

・Size/90x61x60.5H(cm)

・Individual Packaging Size/91.5x11x62.5(cm)

・Material Frame Part: Rubber Wood

Wire Part, others: Steel (Polyester Paint)

Non-slip Rubber Part: TPE Resin

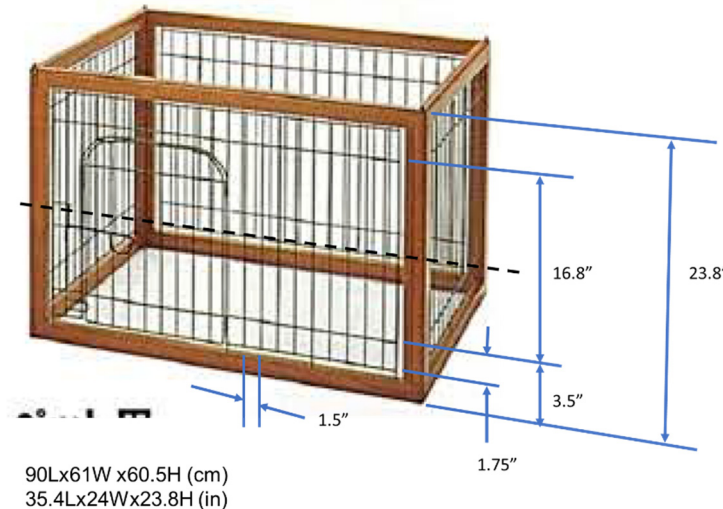
JAN Code 4973655 89291-6

Id. at 1-2; Ex. 1011 at 3.

42. The Richell 2004 Website and the Richell 2003 Catalog list the same product codes for the barriers: JAN codes 4973655 89281-7 and 4973655 89291-6.

Id. A person of ordinary skill in the art would recognize that the Richell 2004 Website and the Richell 2003 Catalog depict the same barrier. Additionally, since the publications included product dimensions, the relative positions of the panels' horizontal and vertical wires can be measured. In fact, I have estimated the relative positions of the horizontal and vertical interrupting wires in the open space of the 90-60D barrier's panels. I estimate the open space of the front panel to have a height of about 20.3". The horizontal interrupting members toward the top and bottom of the open space occur within the top and bottom 10% of the open space, which is well within the top and bottom fifth. Moreover, there are only vertical interrupting

members in the middle 80-85% of the open space, which subsumes the central three-fifths portion of the open space. My estimates are logged below:



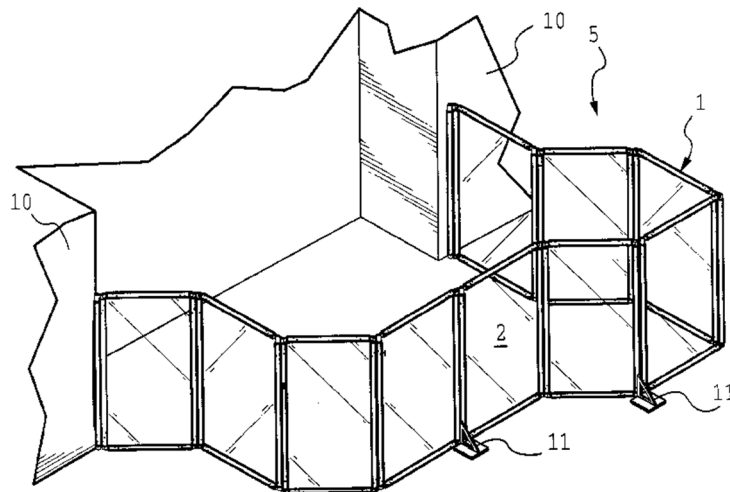
4. The Stability References

43. I refer to the following prior-art references collectively as the “Stability References,” as they all illustrate the concept of incorporating a leg extending orthogonally from the bottom of a vertically oriented panel to increase the stability of the panel structure and to maintain the panel in an upright configuration. The notion that such a leg would increase the stability of a vertically oriented object such as a panel is a basic and foundational mechanical concept. A craftsman without particular engineering coursework would understand this concept from experience and common sense. The Stability References illustrate how well known this concept was in a variety of applications.

i. Miller (Ex. 1006)

44. U.S. Patent No. 6,123,321, which issued on September 26, 2000 to Miller, is titled “Modular resilient child or pet safety fence system.” Miller discloses a fence restraint system for “restraining children or household pets,” to either “confine the subject to a secure area” or “prevent the subject from entering a hazardous area.” Ex. 1006 at 1:5–10.

45. Miller teaches that if the fence system endures “greater lateral stress,” additional support” such as a leg may maintain the fence “in an upright position”:



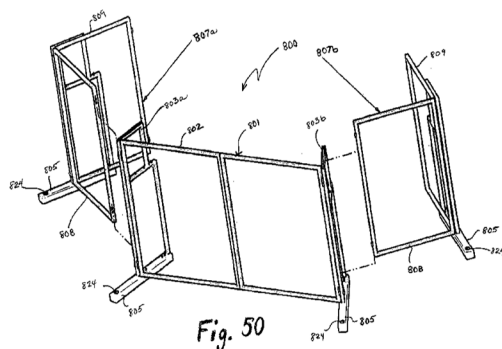
Id. at 7:1–6, Fig. 1.

46. Miller adds that one or more “modular section[s]” may “span a doorway or the entry of a stairway, as an alternative to a conventional safety gate” and may utilize a “hinged connecting means” to “permit[] a modular section . . . to swing as a conventional safety gate.” *Id.* at 3:18–24. In other words, a person of ordinary skill in the art, reading Miller, would immediately understand that Miller’s barrier is

envisioned as being used as a hallway or stairway barrier, and a section of the barrier can be a gate. Miller expressly says as much.

ii. DeMars (Ex. 1009)

47. U.S. Patent No. 6,918,640 to DeMars teaches a portable bar comprising “a central frame” with “opposing ends and at least two side frames . . . being situated on the opposing ends of the central frame.” Ex. 1009 at 21:16–22. For structural support, an “elongated foot member” may be “situated at a bottom end of a side frame.” *Id.* at 21:23–24, Fig. 50.

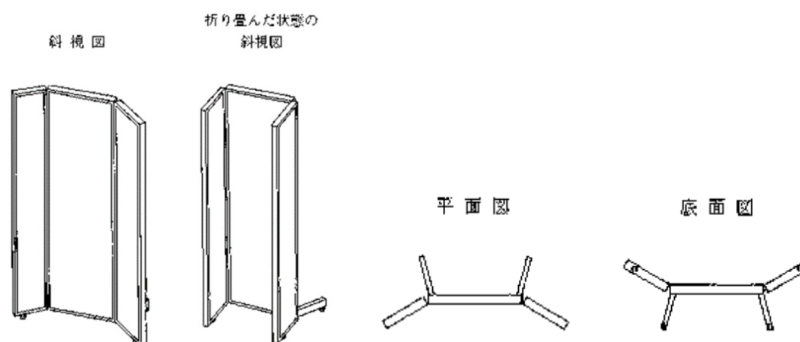


Ex. 1009, Fig. 50. A person of ordinary skill in the art would be motivated to combine the stabilizing “foot members” of DeMars with the barriers of Maffet or Ferran to provide additional stability. Maffet, Ferran, and DeMars each disclose multi-panel, freestanding, upright panel structures that may be used indoors. Regardless of the specific application (e.g., infant barrier, pet barrier, mobile bar, sound barrier, or room divider), the mechanical issue of stabilizing upright panel structures comprised of panels and using stabilizing legs to do so remains the

same. Moreover, coupling a “foot member” to a side barrier, as shown by DeMars, would ensure that the foot member remains perpendicular to the front barrier in use and, to the extent the side barrier is made rotatable with respect to the front barrier, the leg and the side barrier would rotate with the side barrier. Therefore, a person of ordinary skill in the art as of November 24, 2004 would have looked at the “foot members” in DeMars coupled to and extending from the side panels in an approximately perpendicular direction to the front barrier, realized that the “foot members” helped to stabilize the freestanding panel structure in an upright position, and would have been motivated to incorporate legs on multi-panel, freestanding barrier such as disclosed in Maffet or Ferran.

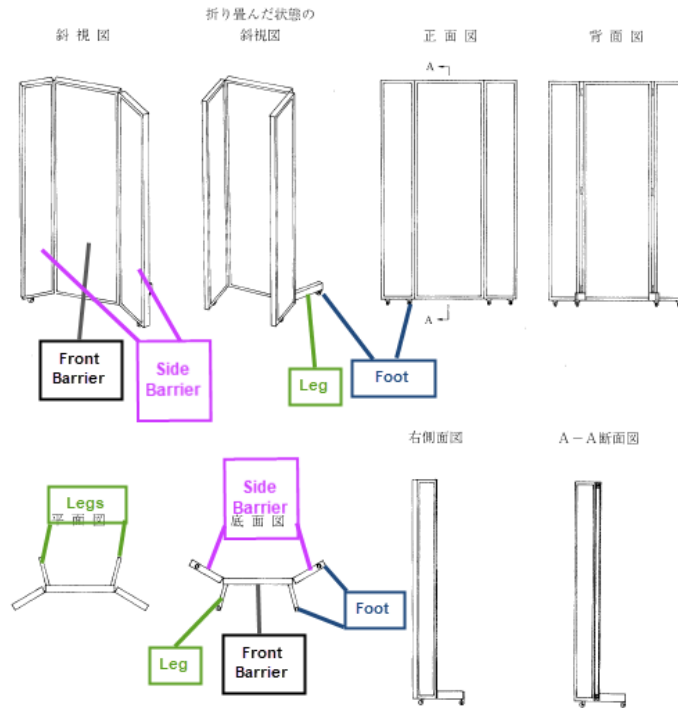
iii. The JP D649 Patent (Ex. 1010)

48. Japanese Design Patent No. 929,649, which published on July 12, 1995, depicts an indoor, multi-panel, freestanding barrier designed to absorb sound having a front panel and two side panels. The barrier is stabilized by a pair of legs coupled to the front barrier and extending from the side of the front barrier opposite the side from which the side panels extend. The legs also have a low profile, close to the ground, which makes them both stabilizing and nonobstructive.



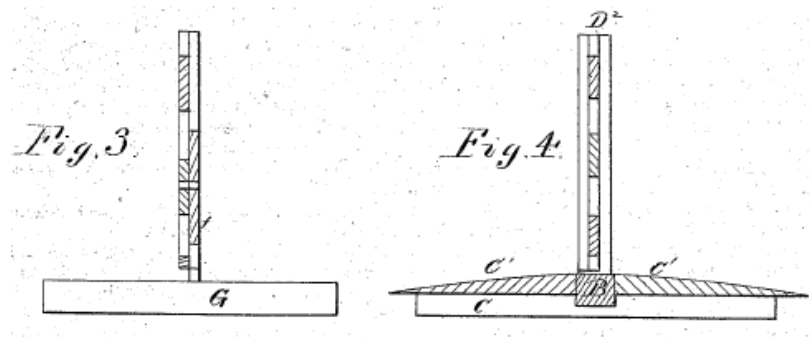
Ex. 1010. A person of ordinary skill in the art would be motivated to combine the stabilizing legs of JP D649 with the barriers of Maffet or Ferran to provide additional stability. Maffet, Ferran, and JP D649 each disclose multi-panel, freestanding barriers that may be used indoors. Regardless of the specific application (e.g., infant barrier, pet barrier, sound barrier, or room divider), the mechanical issue of stabilizing upright barriers comprised of panels and using stabilizing legs to do so remains the same. Indeed, despite being disclosed as an acoustic barrier, there is no mechanical reason why the structure disclosed in JP D649 could not be used as a pet barrier. Furthermore, the mechanical issue of stabilizing a structure made of freestanding panels in an upright configuration is the same for acoustic barriers as it is for pet barriers. Therefore, a person of ordinary skill in the art as of November 24, 2004 would have looked at the legs in JP D649 extending from the side of the front panel opposite the side of the front panel from which the side panels extend, realized that the legs helped to stabilize the freestanding barrier in an upright position, and would have been motivated to incorporate legs on multi-panel, freestanding barrier such as disclosed in Maffet or

Ferran. I have labeled the structure depicted in JP D649 with the corresponding elements described in the '449 Patent:



iv. Overholser (Ex. 1015)

49. Overholser, U.S. Patent No. 135,837, was published February 11, 1873. Overholser discloses a fence comprising vertically oriented panels supported at the base by orthogonally extending supports.



Ex. 1015, Figs. 3-4.

v. *Friedberg (Ex. 1016)*

50. Friedberg, U.S. Patent No. 3,627,272, was published December 14, 1971. Friedberg discloses a vertically oriented panel enclosure having panels supported by orthogonally extending flap supports.

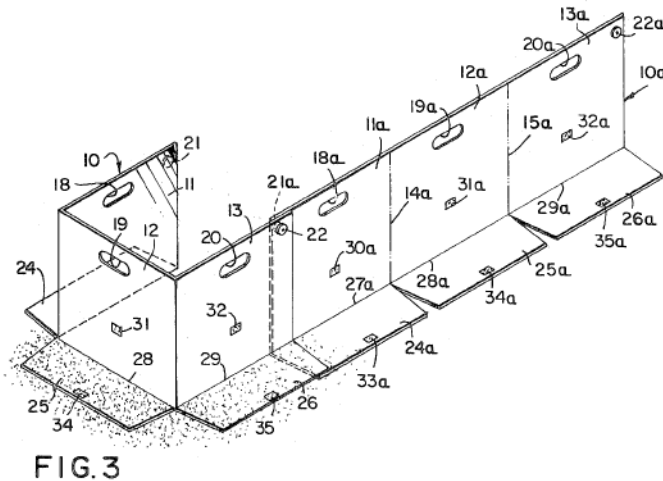


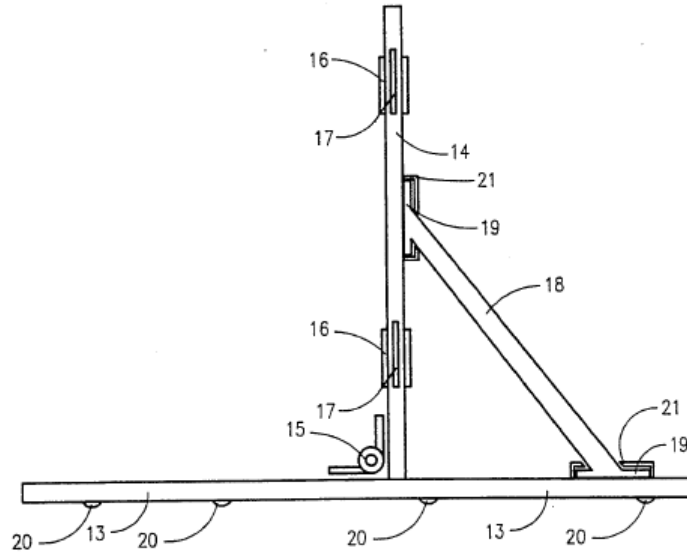
FIG. 3

Ex. 1016 at 3:10-23, FIG. 3.

vi. Schock (Ex. 1017)

51. Schock, U.S. Patent No. 5,356,119, published October 18, 1994.

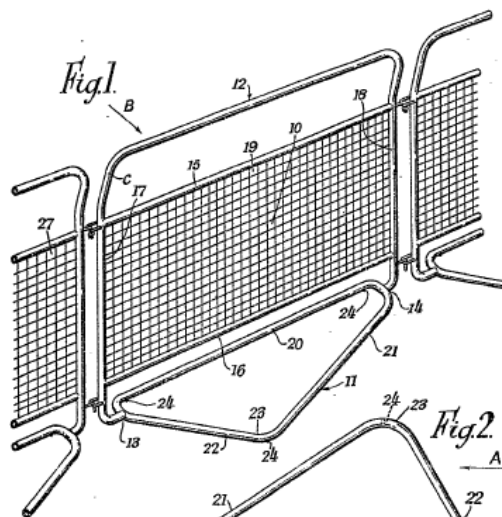
Schock teaches a baby barrier system having a vertically oriented panel structure supported by laterally extending braces. Schock indicates that the braces maintain the panel structure in an upright position in use.



Ex. 1017, Fig. 2; *see also id.* at 3:35-44, Fig. 1.

vii. Tubular Construction Systems (Ex. 1018)

52. Tubular Construction Systems, United Kingdom Patent No. 679,297, published on September 17, 1952. Tubular Construction Systems teaches a vertically oriented panel structure forming a barrier that is stabilized and maintained by a foot portion at its base. The foot portion extends laterally on either side of the vertical panel and provides stability to the barrier.



Ex. 1018 at p. 2, ll. 60-84, Fig. 1.

viii. *Thijssen (Ex. 1019)*

53. Thijssen, Dutch Patent No. 67750, published March 16, 1951.

Thijssen depicts a vertically oriented panel structure supported bi-directionally by legs extending orthogonally from either side of the panel and a laterally extending brace.

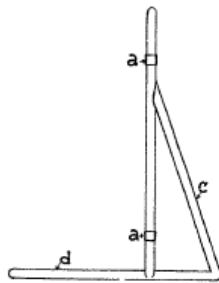
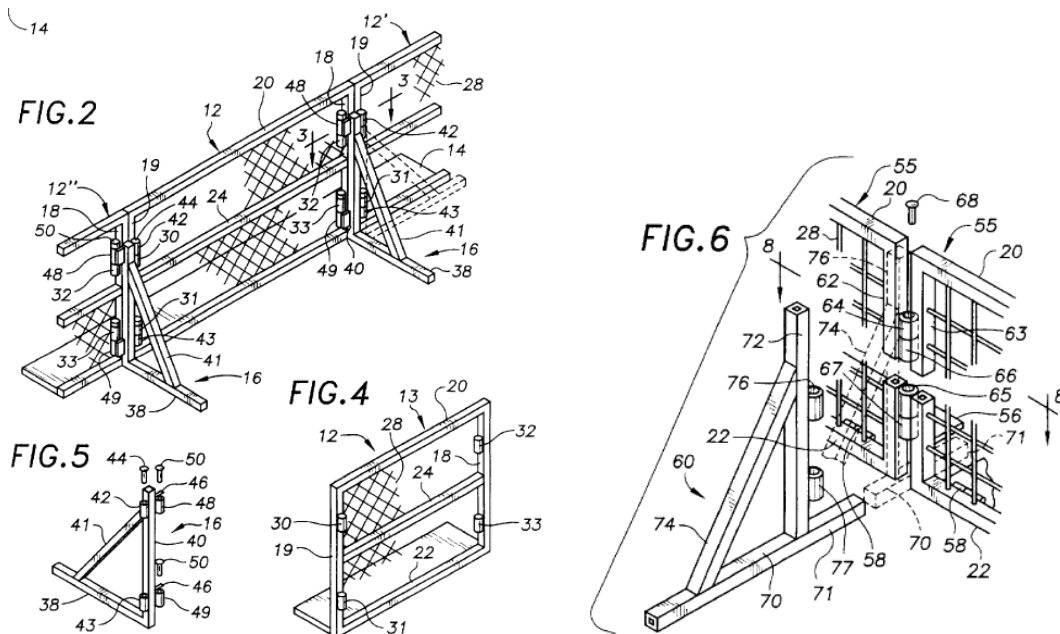


Fig.2

Ex. 1019, Fig. 2.

ix. *Elkins (Ex. 1020)*

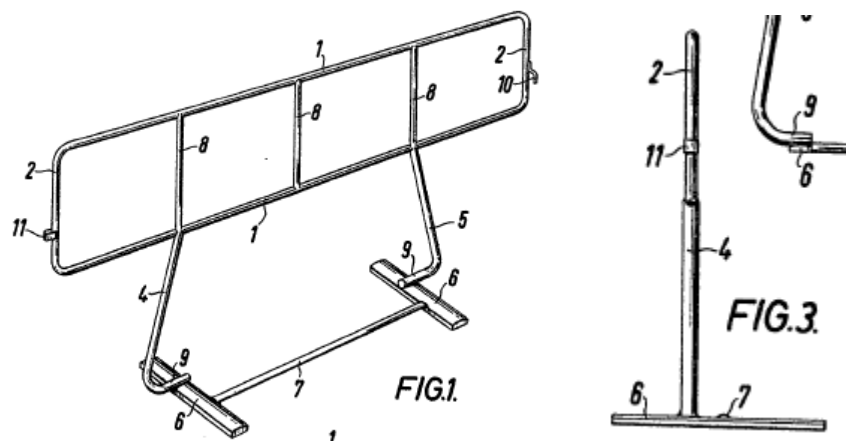
54. Elkins, U.S. Patent No. 5,779,227, published July 14, 1998. Elkins discloses a crowd-control barrier comprising a vertically oriented panel structure supported by a brace. The brace includes a base member extending approximately orthogonally from the lower end of the panel along the ground. The braces stabilize the panels in an upright configuration.



Ex. 1020 at 2:48-67, 3:36-52, Figs. 2, 4-6.

x. Appleby (Ex. 1021)

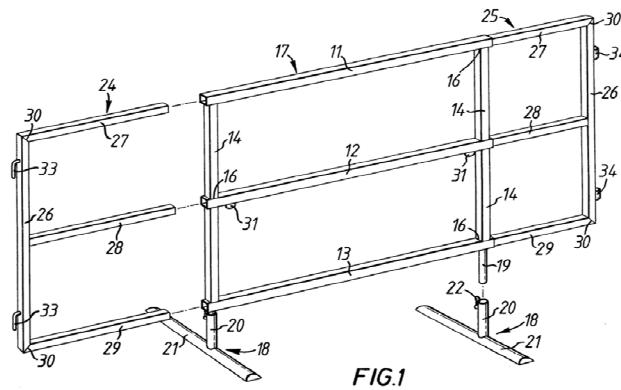
55. Appleby, United Kingdom Patent No. 1,098,201, published on January 10, 1968. Appleby discloses a barrier structure comprising vertically oriented panels stabilized by orthogonally extending “legs” or “feet” extending from either side of the panel structure along the ground.



Ex. 1021 at 1:19-35, Figs. 1, 3.

xi. Hague (Ex. 1022)

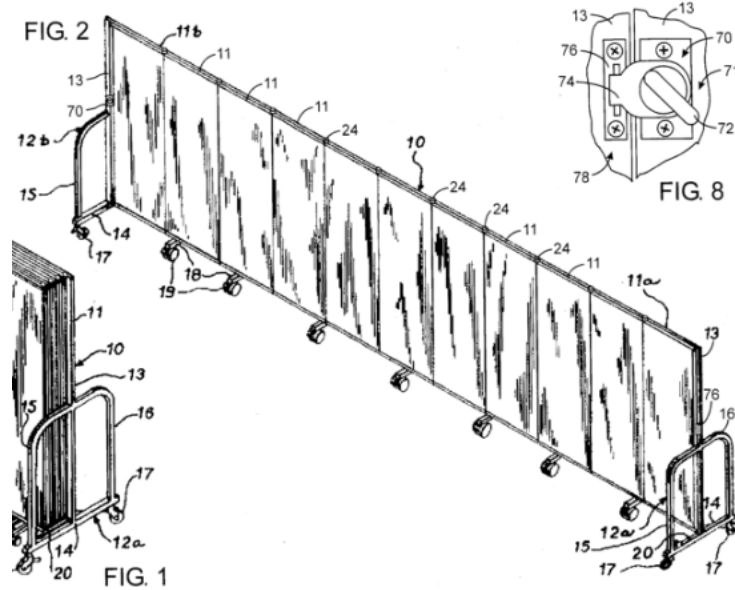
56. Hague, United Kingdom Patent No. 2,063,956, was published on June 10, 1981. Hague discloses a barrier comprising a vertically oriented panel structure which is maintained in an upright configuration by orthogonally extending legs connected to the bottom of the panel structure, which extend from either side of the panel structure.



Ex. 1022, Fig. 1.

xii. Maas (Ex. 1023)

57. Maas, U.S. Patent Application Publication No. 2004/0173325, published on September 9, 2004. Maas discloses a room-dividing barrier comprising a vertically oriented panel structure supported at each end by end members that “are wider than the panels” and whose “orthogonal orientation provides support for the unfolded panels.”



Ex. 1023 at ¶ [0024], Fig. 2.

xiii. Moore (Ex. 1024)

58. Moore, U.S. Patent No. 6,598,649, published on July 29, 2003. Moore discloses a room-dividing barrier comprising a vertically oriented panel structure that is maintained upright by legs extending orthogonally from the bottom and extending from both sides of the panel.

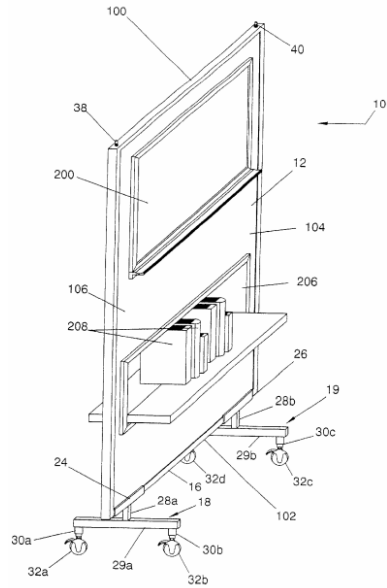


Fig 2

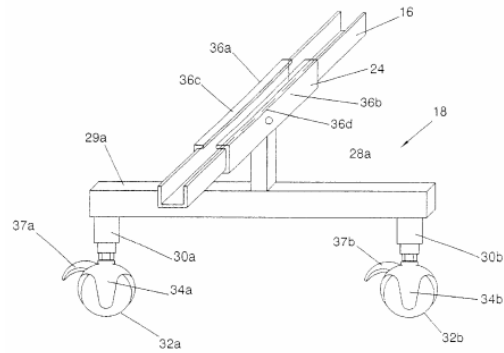


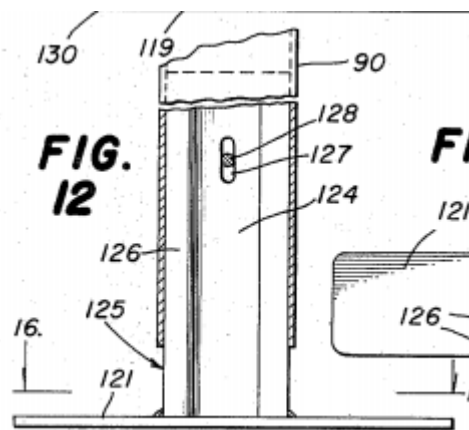
Fig 3

Ex. 1024, Figs. 2-3, 5.

xiv. Lopatka (Ex. 1025)

59. Lopatka, U.S. Patent No. 3,871,435, published on March 18, 1975.

Lopatka discloses a room-dividing barrier structure comprising vertically oriented panel structures maintained in an upright configuration by stabilizing legs extending orthogonally from either face of the panels.



Ex. 1025 at 6:25-66, Fig. 12.

VIII. PERSONS OF ORDINARY SKILL IN THE ART WOULD COMBINE ASPECTS OF THE PRIOR ART TO DESIGN A PET BARRIER AS CLAIMED IN THE '449 PATENT

A. Incorporating Legs into the Maffet and Ferran Barrier Designs

60. At the time of the priority date, November 24, 2004, it is my opinion that it would be a simple and obvious mechanical consideration to a person of ordinary skill in the art to add legs for stability, such as shown by any of the Stability References, with the open-configuration, freestanding, multi-panel barrier designs described in either Maffet or Ferran (or any other open-configuration, freestanding, multi-panel barrier design). It would have been clear to any person of ordinary skill in the art that adding legs, as shown in any of the Stability References, would increase the stability of a barrier structure comprising vertically oriented panels, such as the freestanding barriers in Maffet and Ferran. Increasing the stability of a pet or child barrier would be a concern for a person of ordinary skill in the art in the time surrounding November 24, 2004, as it is and would have been entirely conceivable that a pet or child would have a propensity for tipping, or attempting to tip, the barrier. Accordingly, a person of ordinary skill in the art would have been motivated to incorporate legs on Maffet's or Ferran's freestanding, multi-panel barriers. Incorporating legs would have been trivial and would have been expected to yield predictable results: a more stable barrier. As shown by the Stability References, legs promote bi-directional design stability, design robustness, and may provide aesthetic

enhancement of the barrier. Legs add resistance to tipping as a load or force applied normal to the vertical panel.

61. The vertically oriented panel structures in the Stability References are structurally similar to the freestanding, multi-panel barriers disclosed in Maffet and Ferran from a foundational point of view. For example, the Stability References teach supporting a vertically oriented panel structure on either side by “leg” members that are normal to the vertically oriented panel surfaces to prevent tipping. A common example of such a structure that existed long before the ’449 Patent (i.e., prior to 2004) is a crowd-control barrier used at outdoor social events. Crowd-control barriers have long utilized legs extending forward and rearward from main barrier panel(s) to provide a vertically oriented, self-supporting structure with bi-directional support on either side of the vertically oriented panel(s). There is nothing inventive about adding legs for stability to vertically oriented barrier structures, since this was a well-known, conventional, and wide-spread engineering expedient used for decades (and longer), as evidenced by the Stability References.

62. It is my opinion that a person of ordinary skill in the art would have been motivated to add stabilizing features extending in both perpendicular directions from the vertically oriented panel(s) comprising the barrier to increase bi-directional stability of the barrier. Thus, if a freestanding, multi-panel barrier already incorporated side panels extending rearward for stability, as is the case with Maffet

and Ferran, then incorporating legs extending in the forward direction from the barrier's front panel(s) would provide additional bi-directional stability. Moreover, designing the legs to have a low profile extending from the front barrier close to the ground would minimize the impact of the barrier on the pet so as not to impede or obstruct the pet's path—a fact that would have been readily appreciated by a person of ordinary skill in the art. If the leg were obtrusive and impeded the path of a pet (particularly a larger pet running), the impact of the pet against the leg could destabilize the barrier, something that a person of ordinary skill in the art would have also appreciated.

63. A person of ordinary skill in the art would have a reasonable expectation of success with this combination (adding stabilizing legs to open-configuration, multi-panel barrier structures). Adding legs for vertical stability is a well-known and proven concept that had been used for decades before November 24, 2004, as shown by the Stability References. Low-profile legs still provide stability.

64. In the Stability References, including in particular the JP D649 reference, a person of ordinary skill in the art would understand, from a basic understanding of physics, forces, and rudimentary mechanical design, that the legs extending approximately normal to the front panel is to mitigate bi-directional stresses and add resistance to tipping. The extended floor-contacting surface area

coupled with the added weight of additional materials distributed along the base of the barrier contributes to the added support and resistance to tipping.

B. Adding Adjustable-Width, Overlapping Front Panels to Freestanding Barrier Designs

65. It is my opinion that a person of ordinary skill in the art around the priority date of November 24, 2004 would have recognized that overlapping, adjustable-width barrier panels would have allowed a user to adjust the width of the barrier to the extent needed to block the target opening or area. This overlapping-panel, adjustable-width barrier concept was well-known and common by November 24, 2004. As I discussed above, the child barrier with which I worked at Evenflo during that time utilized overlapping-panel, adjustable-width barriers because Evenflo's customers wanted barriers that could be used in doorways of differing widths. Providing an adjustable-width barrier comprising overlapping barrier panels was well-known at the time. Pet barriers are typically used inside of a home to prevent a pet from entering a specific area of the household. Because customers will have varying dimensions for such areas, a well-known way to allow the pet barriers to adjust to the varying dimensions of such areas would be to use adjustable-width barriers disclosed in Maffet's Fig. 15 with the freestanding, open-configuration, multi-panel barrier disclosed in Maffet's Fig. 1. In fact, including for the reasons discussed in my discussion of Maffet, a person of ordinary skill in the art reading Maffet would understand that Maffet's panels were interchangeable, making such

an adaptation clear and obvious to a person of ordinary skill in the art. Ferran's adjustable-width, freestanding barrier is another example of how well-known such a barrier structure is. Even Richell's own prior-art barriers (such as the "Wooden Low Gates" disclosed and depicted in the Richell 2003 Catalog, Ex. 1011 at 6) show that providing an adjustable-width, overlapping panel barrier was known, and a person of ordinary skill in the art would have immediately appreciated and would have been motivated to incorporate such a feature on a freestanding, open-configuration, multi-panel barrier structure.

66. A person of ordinary skill would have had a reasonable expectation of success with adding overlapping, adjustable-width panels into a freestanding, multi-panel barrier structure. Such an addition would have been well within the skill of a person of ordinary skill in the art and would have added flexibility for use in different-sized areas and passageways. This was a well-known, proven concept that had been used for years before 2004.

C. Incorporating a Gate in the Front Barrier Panels to Freestanding Barrier Designs

67. It is my opinion that a person of ordinary skill in the art would have been motivated to incorporate a gate or door into the front panel structure of a freestanding, multi-panel barrier to allow ease of passage by a human or animal without the need to move the barrier structure from the opening (or substantially alter its position). Incorporating gates or doors into household barriers, such as pet

or child barriers, was well-known prior to November 24, 2004. In fact, Richell itself had pet-barrier products with this feature. For example, the Richell 2003 Catalog depicted a product referred to as “Wooden Low Gates.” Ex. 1011 at 6. This product was a pet barrier incorporating so-called “pet passage doors” allowing humans and pets to pass easily without having to move the barrier product from its location.



Id. On the very same page of the Richell 2003 Catalog is a metal gate that includes a door allowing a human to open or close and pass through the barrier without having to move the barrier from its location.



Id. A person of ordinary skill in the art would have had a reasonable expectation of success for combining a gate, such as the gate depicted in the “Wooden Low

Gates” product in the Richell 2003 Catalog, with a freestanding, multi-panel barrier such as depicted in Maffet or Ferran. And there would be no less expectation of success in implementing a gate that extends the entire height of the barrier; in fact, such a gate would have been easier to implement in the barrier of Maffet or Ferran. A person of ordinary skill in the art would realize that the structure of the overall barrier assembly would not be affected by adding an openable and closable door or gate to one of the front panels. The amount of engineering effort would have been minimal and would have been expected to succeed.

D. Incorporating Wire Design Elements from the Richell Publications to Fill the Open Space Defined by the Peripheries of the Maffet and Ferran Panels; Hinges; Heights; Rubber Feet

68. As discussed, Maffet discloses a panel system that guides a person of ordinary skill in the art to construct a freestanding, multi-panel pet barrier and also teaches the person of ordinary skill in the art that the front panels could be implemented as overlapping, adjustable barrier panels. Moreover, Ferran discloses a freestanding, multi-panel child barrier having an expandable-width front barrier. If a person of ordinary skill in the art were to seek to commercialize a freestanding, multi-panel pet barrier such as the barriers disclosed in Maffet or Ferran before November 24, 2004, the Richell 2003 Catalog provides many desirable and common design features that a person of ordinary skill in the art would understand could be

implemented into such multi-panel barriers (which Richell tried to claim in the '449 Patent despite its own prior-art catalog). For example, the use of wires within the frames of the panels may prevent a pet from chewing through the barrier. Additionally, having vertical wires but no horizontal wires in the central three-fifths of any given panel may prevent a pet from passing through the barrier while reducing the ability for some pets to climb the panel. Assembling the barrier panels (particularly the front barrier panels and the side barrier panels) to each other with a hinge design may allow convenient assembly and disassembly as well as rotatability of hinged components relative to each other. And the 50.5cm height or 60.5cm height may prevent certain pets from climbing or jumping over the panels yet be low enough so that a person could step over the panels.

ケージ・サークル・ハウス

木製サークル

木の温もりあふれる快適ペット空間です。

木製のフレームなので室内に馴染みます。
ゴム脚付きで床にキズをつける心配がありません。

ペットのしつけ用スペース
として便利です。

子犬の飼育をはじめ中短毛犬スペースでの使用に最適



60-50Dの使用例です。



90-60Dの使用例です。



簡単に組み立て
パネルを組み合わせます。

木製サークルとNフリーローは
組み合わせて使うこともできます。

サークルのアンダーレーとして。



**ペット用
木製サークル 60-50D**
¥9,500 入数 2

●サイズ(内径×高さ×奥行) 50×54×54(cm)
●設置サイズ(内径×高さ×奥行) 50×54×54(cm)
●材質(フレーム・パネル) 木製・ワイヤー、内装(床板・壁板) TP4樹脂、ワイヤー網、布、紙(付くエコーステム選別)
JANコード 4873555 89281-7



**ペット用
木製サークル 90-60D**
¥13,500 入数 2

●サイズ(内径×高さ×奥行) 90×60×54(cm)
●設置サイズ(内径×高さ×奥行) 90×60×54(cm)
●材質(フレーム・パネル) 木製・ワイヤー、内装(床板・壁板) TP4樹脂、ワイヤー網、布、紙(付くエコーステム選別)
JANコード 4873555 89291-6

Ex. 1011 at 3. Finally, having anti-skid rubber feet would help keep the barrier in place (against the force of smaller animals pushing on the barriers) and would reduce scratching the underlying floor. The patents refer to “friction-increasing” surfaces

and substances. Rubber feet located at the interface of a barrier and a floor would be understood by a POSITA to be an effective and common friction-increasing surface.

69. With respect to the Richell Publications illustrating adjacent panels being coupled by hinges, a POSITA would recognize that hinges are commonly used to secure rotatable components together. A POSITA would have understood, particularly when sparked by seeing the hinges in the panels in the Richell Publications, that hinges having complementary tubular members were common, unsophisticated, and could have readily been employed. One of the hinges in Nakamoto, for instance, could have been substituted for the clamp-hinges in Maffet, and a POSITA would have a reasonable expectation of success.

IX. CONCLUSION

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: December 4, 2019

by Todd S Ventrola

Todd S. Ventrola in Liberty Township, Ohio

CAREER SUMMARY

- Director of R&D - Mechanical Engineering with extensive project management, product innovation, development, design, testing and manufacturing experience in the durable goods and medical device industry.
- Proven track record in strong leadership and highly successful stage gate management.
- Strategic leader collaborating daily with product development support groups involved such as marketing, supply chain, procurement, quality assurance, manufacturing, industrial design, senior management and offshore.
- Extensive experience working with Far East manufacturing suppliers traveling as necessary to convey project requirements, design intent, testing and schedule conformance.
- Results oriented with strong track record for meeting goals and objectives through collaborative cross functional teamwork.
- Highly motivated, passionate and creative leader, promoting open dialog and innovation from direct reports.
- Experienced in Pro/E / SharePoint / FEA / Unigraphics NX / SolidWorks / SolidEdge / MS Office

CORE COMPETENCIES

- | | | |
|-----------------------------------|----------------------------|-----------------------------|
| * Project Management | * Lean Design & Innovation | * Stage Gate development |
| * Global product development | * ASTM / UL / IEC60601 | * Leadership and Mentoring |
| * Injection / Blow / Roto molding | * Team Collaboration / VOC | * FEA / PPAP / DFMEA / CAPA |

PROFESSIONAL EXPERIENCE

Hillrom – Leading medical device manufacturer

2012 - present

Director of R&D Mechanical Engineering, *Batesville, IN*

- Leader of 3 managers with a total staff of 30 professionals in the development of global Class 1 & 2 medical devices: hospital bed, stretchers, patient lifts. Teams include: Drafter/Designers (7), Model Shop (7), Structural Simulations (4), Mechanical Engineers (9).
- Cross functional collaboration on project plan strategy and execution.
- Co-authored global Design for Manufacturing and Assembly guide used by global R&D teams to assist in identifying design challenges early in the development phase.
- Responsible for employee development, talent assessment, managing annual departmental budget of \$4MM+ and developing capital expenditures for equipment and software investments.
- Drive use of structural simulation for early design optimization and for reduction of V&V sample size.
- Developed Global R&D SharePoint for collaboration on npd project execution.
- Product Development Process council member facilitating sustained continuous improvement on QMS processes.

Confluence Watersports Inc. – Leading consumer watersport product manufacturer

2010-2012

Director of Engineering and Design, *Greenville, South Carolina*

- Team leader of 12 professionals in the innovation, development and sustainment of all corporate watercraft and accessories.
- Lead and establish project plan strategy for product development and engineering.
- Formed cross discipline product development brand teams resulting in increased collective communication, project executional and schedule milestone efficiency.
- Set departmental operating budgets, project resources and schedule management for category initiatives.

- Collaborate with cross functional disciplines establishing process improvements and development of test standards.
- External industrial design collaboration capturing design intent from consumer research.
- Administration responsibilities including team status, interviewing, hiring, performance reviews and continuous education.
- Lead continuous improvement and value initiatives reducing product cost without compromising quality or consumer satisfaction.
- Established design and documentation standards and disciplines building efficiency in the development process.

Evenflo Inc. – Leading consumer infant product manufacturer

Engineering Manager / CAD Admin, *Miamisburg, Ohio* 2004-2009

- Working manager for a team of 4 to 7 professionals consisting of Mechanical Engineers, Industrial Designer, and Engineering co-ops in the innovation, development and sustainment of new infant care products.
- Collaborate with Far East office and manufacturers in product execution and delivery.
- Responsible for development and sustainability of \$150MM+ product lines in Home Safety, Feeding and Playtime categories including Class II medical devices (Breast Pumps & Breast Pads).
- Authored corporate ISO13485 medical device DMR / DHR for Class II medical devices.
- Set departmental operating budgets, project resources and schedule management for initiatives.
- Partnered with Marketing establishing category strategic planning and P&L.
- Partnered with Marketing to find voice of customer through focus group testing, qualitative \ quantitative and online research.
- Mentored junior engineers and engineering co-ops in lean design, innovation and project management.
- Chaired all corporate product design reviews and DFMEA's, from car seats to infant bottles, ensuring product initiatives capture lean manufacturing and design practices that meet ASTM, and corporate abuse and safety standards.
- Collaborated with outside industrial design firms capturing design intent from consumer research.
- Administration responsibilities including team status, interviewing, hiring, performance reviews and continuous education.
- Managed engineering co-operative program responsible for hiring, training and mentoring six candidates annually.
- Member of API team (advanced product integrity) utilizing 8D root cause analysis improving design and manufacturing processes that enhance product successes.
- Lead continuous improvement value initiatives to reduce product cost without compromising quality or consumer satisfaction.

Senior Project Engineer / CAD Admin, 2001-2003

- Project engineer in concurrently managing and designing multiple injection-molded electromechanical projects, varying in complexity, from concept to production.
- Project design leader on \$60MM highchair initiative, \$90MM activity center initiative.
- Apply extensive experience in exploring new ways to reduce time to market execution of current development process and incorporate lean methods in product development.
- Perform various forms of design analysis using Pro/FEA, DFMEA
- Maintained iso9001 documentation processes.
- Responsibilities for install and upgrades of o/s, Pro/Engineer 3D CAD/CAM and Pro/Intralink PDM database management software for server and workstations.
- Wrote capital expenditures for purchasing hardware, software and yearly budgeting.

Hasbro Inc. – Leading consumer toys and gaming products manufacturer 1987-2000

Senior Project Engineer, *Cincinnati, Ohio*

- Project engineer managing and designing multiple toy projects, varying in design complexity, including electro-mechanical, from concept to production.

- Assigned to Special Projects Team responsible for the management and development, from concept to production, of high design complexity projects with critical time to market schedules.
- Developed and approved costing and schedules to provide highest profitable returns with "fastest to market" results.
- Communicate daily with "core product development team" consisting of Marketing, Industrial Design, Packaging and Quality Assurance to make sure project goals and targets were met.
- Coordinated logistics in project milestones and was the project leader on assigned projects with engineers in Hong Kong and China.
- Develop technical drawings using GD&T and ANSI y14.5 drawing standards.

EDUCATION

Indiana Wesleyan University

- Master's in business administration - Management / Operations focus.

University of Cincinnati

- Bachelor of Science Mechanical Engineering Technology

AWARDS

- Patents & Applications: D465440; 2008/0113581; 2007/0145790; 2006/0059779; 2005/0281428; 2011/0186604; US20180000633A1