

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NINTENDO CO., LTD. and
NINTENDO OF AMERICA INC.,

Petitioners,

v.

GAMEVICE, INC.,

Patent Owner.

PTAB Case No. IPR2023-00643

Patent No. 10,391,393

DECLARATION OF GARRY KITCHEN

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EXHIBIT LIST

No.	Description
Ex. 1001	U.S. Patent No. 10,391,393 (“’393 patent”)
Ex. 1003	U.S. Patent Application Publication No. 2001/0045938 A1 (“Willner”)
Ex. 1004	Translation of Korean Patent No. 10-2011-0116892 (“Park”) with Korean Version and Translation Certification
Ex. 1005	U.S. Patent No. 9,539,507 B2 (“Schoenith”)
Ex. 1006	International Patent Application No. WO 2014/079264 A1 (“Kessler”)
Ex. 1007	U.S. Patent Application Publication No. US 2012/0271967 A1 (“Hirschman”)
Ex. 1008	U.S. Provisional Patent Application No. 61/477,387
Ex. 1009	File History for U.S. Patent No. 10,391,393
Ex. 1010	<i>Nintendo Co. v. Gamevice, Inc.</i> , IPR2018-01521, Paper 34 (PTAB Mar. 10, 2020)
Ex. 1011	<i>Nintendo Co. v. Gamevice, Inc.</i> , IPR2018-01522, Paper 34 (PTAB Mar. 10, 2020)
Ex. 1012	U.S. Patent No. 9,126,119 (“’119 patent”)
Ex. 1013	File History for U.S. Patent No. 9,855,498

Ex. 1014	Commission Determination, <i>Certain Portable Gaming Console Systems with Attachable Handheld Controllers and Components Thereof</i> , ITC Inv. No. 337-TA-1111, 84 Fed. Reg. 54640 (Oct. 16, 2019)
Ex. 1015	Nintendo’s First Supplemental Response to Gamevice Interrogatory Concerning Nintendo’s Invalidity Contentions, <i>Portable Gaming Console Systems with Attachable Handheld Controllers and Components Thereof II</i> , ITC Inv. No. 337-TA-1197 (June 23, 2020)
Ex. 1016	Excerpts of Gamevice’s Supplemental Objections and Responses to Nintendo of America Inc.’s First and Third Sets Interrogatories, <i>Portable Gaming Console Systems with Attachable Handheld Controllers and Components Thereof II</i> , ITC Inv. No. 337-TA-1197 (July 2, 2020)
Ex. 1017	Rule 36 Notice Affirming Commission Opinion, <i>Gamevice, Inc. v. ITC</i> , No. 20-1264 (Fed. Cir.), ECF No. 63 (May 20, 2021)
Ex. 1018	Initial Determination, <i>Certain Portable Gaming Console Systems with Attachable Handheld Controllers and Components Thereof II</i> , ITC Inv. No. 337-TA-1197 (July 2, 2021)
Ex. 1019	Commission Determination, <i>Certain Portable Gaming Console Systems with Attachable Handheld Controllers and Components Thereof II</i> , ITC Inv. No. 337-TA-1197, 86 Fed. Reg. 50744 (Sept. 3, 2021)
Ex. 1020	Gamevice Inc.’s Unopposed Motion to Dismiss, <i>Gamevice Inc. v. U.S.I.T.C.</i> , Appeal No. 22-1120 (Fed. Cir.), ECF 16 (Feb. 10, 2022)
Ex. 1021	Gamevice Inc.’s Case Management Conference Report, <i>Gamevice Inc. v. Nintendo Co., Ltd.</i> , No. 3:19-cv-1942-RS (N.D. Cal.), ECF 206 (Jan. 27, 2022)
Ex. 1022	Nintendo’s Notice of Motion and Motion for Rule 11 Sanctions, <i>Gamevice Inc. v. Nintendo Co., Ltd.</i> , No. 3:19-cv-1942-RS (N.D. Cal.), ECF 216 (Mar. 30, 2022)

Ex. 1023	Further Case Management Scheduling Order, <i>Gamevice Inc. v. Nintendo Co., Ltd.</i> , No. 3:19-cv-1942-RS (N.D. Cal.), ECF 219 (Apr. 11, 2022)
Ex. 1023	Further Case Management Scheduling Order, <i>Gamevice Inc. v. Nintendo Co., Ltd.</i> , No. 3:19-cv-1942-RS (N.D. Cal.), ECF 218 (Apr. 11, 2022)
Ex. 1024	Order Denying Motion for Rule 11 Sanctions, <i>Gamevice Inc. v. Nintendo Co., Ltd.</i> , No. 3:19-cv-1942-RS (N.D. Cal.), ECF 225 (May 18, 2022)
Ex. 1025	Memorandum from Katherine K. Vidal to Members of the Patent Trial and Appeal Board on Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022), <i>available at</i> https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf
Ex. 1026	Federal Judicial Center, United States District Courts, National Judicial Caseload Profile (June 30, 2022)
Ex. 1027	<i>Code200, UAB v. Bright Data Ltd.</i> , IPR2022-00861, Paper 18 (PTAB Aug. 23, 2022) (Director Decision)
Ex. 1028	Order Construing Claims and Requesting Supplemental Briefing Regarding Motion for Summary Judgment, <i>Gamevice, Inc. v. Nintendo Co., Ltd.</i> , No. 18-cv-1942-RS (N.D. Cal.), ECF 241 (Jan. 19, 2023)
Ex. 1029	Gamevice, Inc.’s Supplemental Opposition to Nintendo’s Motion for Summary Judgment, No. 18-cv-1942-RS (N.D. Cal.), ECF 244 (Feb. 23, 2023)
Ex. 1030	Appendix A (Claim Listing for Challenged Claims of ’393 Patent)

I. INTRODUCTION

1. I have been retained by counsel for Nintendo Co., Ltd. and Nintendo of America Inc. (Nintendo) as a technical expert in connection with the proceeding identified above.

2. As an expert with several decades of experience in the field of video games and video game peripherals including controllers, I have been asked to provide my opinions and views on the materials I have reviewed in relation to U.S. Patent No. 10,391,393 (the '393 patent) (Ex. 1001) and the scientific and technical knowledge regarding the subject matter of the '393 patent before and at the earliest potential priority date for the challenged claims. I submit this Declaration in support of Nintendo's petition for *Inter Partes* Review (petition) of the '393 patent against Patent Owner Gamevice (Gamevice).

3. I was also retained for by counsel for Nintendo with respect to its *Inter Partes* Review petition submitted in IPR2020-01197. I understand that the Board denied the institution of that prior petition as a matter of discretion, in view of a parallel International Trade Commission proceeding (Inv. No. 337-TA-01197), even though the Board noted that Nintendo's challenges had "some strength."

II. PROFESSIONAL BACKGROUND, QUALIFICATIONS, AND COMPENSATION

A. Education

4. I am an engineer, video game designer, entrepreneur and consultant. I received a Bachelor of Science in Electrical Engineering in 1980 from Fairleigh Dickinson University, where I was awarded membership in the Eta Kappa Nu Honor Society, and the Electrical Engineering and Computer Engineering Honor Society of the Institute of Electrical and Electronic Engineers (IEEE). As an Electrical Engineering student, I was twice chosen to receive the Engineering Merit Scholarship from Panasonic / Matsushita Corporation of Japan, one of the largest consumer electronics companies in the world.

B. Professional Experience

5. My career in the electronic entertainment/video game industry includes over 40 years of experience running game development companies, with significant hands-on technical and creative experience in all game genres, including console, PC retail and download, online, mobile, and dedicated electronic. I have personally developed video game software that has generated career sales in excess of \$350 million.

6. I have been directly involved in the design, development, and publication of hundreds of commercially-released video game products, across a breadth of hardware platforms, from the earliest Atari machine through the

present-day Apple iPhone. In that capacity I have personally designed and programmed video games, acted as a co-designer and/or co-developer on numerous games, managed development teams from small to large, run development studios and game publishers, and served as Vice President of Game Publishing for Nickelodeon Television, a division of media giant Viacom.

7. In 1979, while still in engineering school, I invented and developed the handheld electronic game Bank Shot for Parker Brothers, named one of the “10 Best Games of 1980” by OMNI Magazine and recognized as one of the year’s top games by Games Magazine. Bank Shot utilized a customized version of the American Microsystems (AMI) S-2000 4-bit microprocessor, a state-of-the-art (at the time) single chip microcomputer. I was awarded U.S. Patent No. 4,346,892 (“Electronic Pool Game”) for the invention of Bank Shot.

8. In 1980, I reverse engineered the hardware and software of the Atari 2600 game platform, developing one of the first third-party compatible games for the system (Space Jockey).

9. In 1982, I designed and programmed the Atari 2600 adaptation of the hit arcade game Donkey Kong, which achieved revenues in excess of \$100 million on 4 million units sold, making it one of the top selling video games of 1982.

10. From June 1982 to March 1986, I was a Senior Designer for Activision, Inc., during which time I designed and developed numerous games,

including the hit title Keystone Kapers, which earned a Video Game of the Year (1983) – Certificate of Merit from Electronic Games Magazine.

11. From 1984–1985, I developed Garry Kitchen’s GameMaker, a suite of five professional quality design tools connected to an easy-to-use programming language that allowed novice game makers to create commercial quality video games. Computer Entertainer Magazine honored me as Video Game Designer of the Year (1985) for my work on Garry Kitchen’s GameMaker.

12. In 1986, I co-founded Absolute Entertainment, Inc. and served as Chairman, President & CEO until November 1995. Absolute Entertainment, Inc. was a console game publisher licensed by Nintendo, Sega, Sony, 3DO and Atari and was a video game developer of over one hundred marketed titles from 1986 to 1995. Absolute Entertainment was the first North America-based game studio licensed to develop games for Nintendo game consoles.

13. From 1986–1987, I served as a consultant for RCA David Sarnoff Research Center in Princeton, New Jersey, on the potential entertainment applications of Digital Video Interactive (DVI), one of the first technologies to store full-motion video on a CD-ROM. DVI was introduced to great acclaim at the second annual Microsoft CD-ROM Conference in 1987. DVI technology was subsequently acquired and commercialized by Intel Corporation.

14. In 1995, I co-founded Skyworks Technologies, Inc., an early, pioneering online game company. At Skyworks, as President & CEO, I led the creation of one of the first large-scale online free gaming websites, Candystand.com, for LifeSavers Candy Company, then a division of Nabisco Inc. The Candystand, launched in 1997, is recognized as one of the first and most successful examples of advergaming, the integration of gaming and advertising. Candystand's innovative approach to online marketing was later the subject of a Harvard Business School case study.

15. In addition to our pioneering work in online games, Skyworks performed technical consulting for and provided content to the Sega Channel, one of the first downloadable game content delivery systems deployed in the United States. From 1993–1998, Sega Channel delivered Sega Genesis-compatible games for rental over coaxial cable. Sega Channel was named one of 1994's most innovative products by Popular Science Magazine. At its peak, Sega Channel was available in over 20 million homes through 21 cable suppliers.

16. Under my leadership, Skyworks became the preeminent supplier of promotional games (advergames) to the world's largest brands, including Kraft Foods, Nabisco, Post Cereal, Pepsi, Coke, BMW, Toyota, Ford Lincoln Mercury, General Motors, Campbell's, Fox Sports, CBS, Mattel, ESPN, Microsoft Network,

Showtime, Yahoo, MTV, the Weather Channel, Comedy Central, Cartoon Network, Sony Pictures, Discovery Channel, Unilever, P&G and many others.

17. In 2008, Skyworks entered the smartphone app marketplace with the introduction of Arcade Hoops Basketball, an iPhone app that I personally developed and programmed. Arcade Hoops Basketball has been downloaded more than 10,000,000 times on the Apple App store. Skyworks became a leading publisher of games on the Apple iPhone platform, generating over 50 million total downloads in the first five years of the app store.

18. From 2010–2012, I served as the Vice President of Game Publishing for Nickelodeon/Viacom Media Networks, a division of Viacom Inc., a \$15 billion media conglomerate. While at Viacom, I led development of the Addicting Games mobile app for the Apple iPhone, the first Viacom-published app to reach #1 in the Apple App store. The Addicting Games mobile app was honored with a 2012 Webby Award from the International Academy of Digital Arts and Sciences in the category of Games (Handheld Devices). The Addicting Games mobile app was the sixth iPhone-compatible game developed personally by me or under my direct supervision that has risen to #1 in the Apple App store, a marketplace with over 2,000,000 individual titles.

19. I have served numerous times as a technical expert in matters regarding video games and electronic entertainment products. My clients in these

cases have included some of the largest entertainment companies in the world, including Sony Computer Entertainment, Nintendo, Microsoft, Apple, Google, Hasbro, Konami Digital Entertainment, Ubisoft, Activision, LEGO, and Zynga.

20. I have been recognized numerous times for my contributions to the fields of interactive entertainment and video games. For example, in 1992, I received a Lifetime Achievement Award in Video Games from The Doctor Fad Show, a syndicated educational television program. In 2003, I was honored with the Lifetime Achievement Award in Video Games from Classic Gaming Expo. Other awards I have received include New Jersey Entrepreneur of the Year Finalist (Inc. Magazine, Merrill Lynch and Ernst & Young), Bosslevel – The World’s Top 100 Game Developers, Nintendo President’s Award, Software Publishers Association (SPA) Excellence in Software, and Video Game of the Year.

21. I am a member of the Academy of Interactive Arts & Sciences, the International Game Developers Association, the I.E.E.E., and the National Academy of Television Arts & Sciences. In addition, I serve on the Advisory Board of the National Video Game Museum.

22. I am recognized as an industry expert in the areas of electronic entertainment, online and mobile gaming, and interactive advertising and have spoken and/or appeared at many industry events. My speaking engagements have included the Qualcomm Q-Tech Forum, Consumer Electronics Show, National

Cable Show, Digital Media Summit, Game Developers Conference (GDC), Digital Hollywood, iMedia Breakthrough Summit, Gamer Technology Conference, Classic Gaming Expo, Casual Connect, Portland Retro Gaming Expo, Advertising in Gaming Conference, DMExpo, and the VNU Digital Marketing Conference.

23. I have been interviewed in a number of print and online publications, including Bloomberg Business, Retro Gamer Magazine, Atarian Magazine, Wired, Video Game Collector, Electronic Games Magazine, Retro Magazine, 3-2-1 Contact, Fast Company, and Business 2.0. I have also been interviewed numerous times in the broadcast media, having appeared on the Dr. Fad Show, All Access Television, CNN Real News For Kids, Good Morning Atlanta, ABC Eyewitness News, NBC's Sunday Today in New York, and CNN FN Entrepreneurs Only. Additionally, I appear in a number of documentary films recounting the history of the video game industry, including World 1-1, Atari: Game Over, Unlocked: The World of Games, Revealed, The Artists: The Creative Visionaries Behind the Rise of the Modern Video Game, and Batteries Not Included, "a documentary about the genius behind that thing you had when you were a kid"

24. I have significant experience with the design, layout, and technical implementation of control devices for electronic game products.

25. For example, in 1978–1979, I worked as a design engineer on Wildfire, an early electronic toy marketed by Parker Brothers. Wildfire was a

handheld gaming device with an LED-based screen, and video game-style input controls. As one of the key engineers, I was involved in all game control aspects of the device, including the human engineering, as well as the hardware and software development.

26. As a follow-up product to Wildfire, in 1980, I invented and designed Bank Shot, which I mentioned above, a handheld electronic toy which simulated the game of billiards. Like a standard video game controller of today, Bank Shot was held by the player in two hands. The game included video-game style input devices, including arrow buttons, direction and action buttons. I was the lead designer on Bank Shot, including the specification, location, functionality and software implementation of all the game controls.

27. Although Wildfire and Bank Shot were not traditional video game controllers (in fact, they predated now “traditional” video game controllers), the design challenges were similar. These devices were some of the earliest electronic game products in which the player held the controller device in two hands, manipulating the on-screen objects with the input devices while watching the “video” screen. The player used the buttons to move game objects on the screen, and to aim and control their movement. The design of the control scheme of these early handheld electronic games involved many of the same challenges as with traditional video game controllers; for example, what buttons were needed to

control the game, where should the buttons be placed on the device for comfortable usage, what technologies should be used for the buttons, how would the buttons be read by the electronics and the associated computer software, and what would the function of each button be, such as moving or controlling an object on the display of the game.

28. Also related to game controls, in the mid-2000s, I led development of a promotional video game for the consumer products company Kraft Foods. As part of a consumer giveaway for a world-famous food brand, the consumer received a video game packaged with a custom game controller, available only from Kraft Foods. I worked with the development team on the design of the game and the design and procurement of the custom control device.

29. Since 2008, I have been a leading designer and developer of video games on touchscreen platforms, such as the Apple iOS line of devices. In that capacity, a strong knowledge of human engineering of control schemes is critical to the success of a game title. As a designer of “soft”¹ controls, one must make many of the same decisions – what controls are needed, how do they function, how does the software interface with them, and what does the game do in response to them. In addition, in working on the current generation of touchscreen game

¹ “Soft” controls are simulations of physical game controls which are engineered on the touch screen.

devices, I have engineered game control solutions utilizing accelerometers and gyroscopes.

30. Finally, in addition to my practical experience in game controls, I have served as an expert consultant in numerous matters involving game controller design and technology. I have worked with Sony on several cases related to its line of PlayStation game controllers, on both hardware and software matters. In addition, the Sony engagements have also involved the haptic feedback features of modern video game controllers.

31. I have also worked on multiple cases involving the Nintendo Wii motion control device, matters involving guitar-style game control devices, at least one matter involving an exercise-themed game control device, and a patent dispute involving current-day PC-based game controllers.

32. My education, professional experience and case history as an expert witness are described in my Curriculum Vitae, attached as Appendix A.

C. Publications

33. I have participated in a business and technical management role in the publication of hundreds of commercial software products. In addition, I have had direct involvement in the development of over 80 commercial software products, either as designer, co-designer, software author or co-author. A list of these published titles is included in my Curriculum Vitae.

D. Compensation

34. I am compensated in this matter at my standard rate of \$600/hour. My compensation is in no way affected by the outcome of this proceeding.

III. BASIS FOR OPINION

35. My opinions and views set forth in this report are based on my education, training, and experience in the relevant field, as well as the materials I reviewed in this case (including the exhibits listed above and any other references I cite in this declaration), and the scientific knowledge regarding the same subject matter that existed prior to the earliest potential priority date for the challenged claims of the '393 patent.

IV. PATENT LAW STANDARDS

36. I am not an attorney. I have been informed about certain aspects of the law that are relevant to my opinions. My understanding of the law is as follows.

A. Priority

37. I have been informed that a claim of a patent is not entitled to the priority date of an earlier application if that application does not disclose all limitations of the claim in question. I have been informed that while Nintendo does not concede that the challenged claims have an earlier priority date than the filing of the '393 patent, Nintendo contends that the earliest possible priority date for the challenged claims is February 2, 2015. I have also been informed that, in the ITC

Investigation No. 337-TA-1197, Gamevice contended that the challenged claims are entitled to a priority date of February 2, 2015. *See* Ex. 1016.

38. I am further informed that because the earliest possible priority date for claims 1–7 is after March 16, 2013, the '393 patent is subject to review, for purposes of patentability, under 35 U.S.C. §§ 102 and 103, as amended by the America Invents Act.

B. Person of Ordinary Skill in the Art

39. I understand that patents and prior art references are analyzed from the point of view of a Person of Ordinary Skill in the Art at the time of the alleged invention claimed by the '393 patent (POSITA). In my opinion, a POSITA in the context of the technology claimed in the '393 patent at the time of the alleged invention would have had an undergraduate degree in mechanical, electrical, or computer engineering or other technical training in product design or equivalent work experience in the development of interactive products. Such a person would possess at least one year of experience in developing and/or evaluating interactive products. Relevant professional or practical experience or degrees in other subject areas where a person would gain experience of this type may also suffice to qualify a person as skilled in the art.

40. Based on my educational background and work experience, I am and was familiar with the technology at issue as of the earliest potential priority date

for the challenged claims. My educational background and experience also allow me to evaluate what knowledge a POSITA, as defined above, would have had because I have similar qualifications and have worked with many people with such qualifications. My educational background and experience also provide me with insight into the educational level and familiarity of a person working in the interactive entertainment field during the relevant time frame.

41. I believe I am familiar with what such a POSITA would understand from reading the '393 patent, a particular cited reference, or other evidence included in the record of the petition. In this declaration, when discussing what a document discloses or suggests, I am describing what I believe a POSITA would have understood as being disclosed or suggested by the document during the relevant time frame.

C. Claim Construction Principles

42. I have been informed and understand that claim construction is a matter of law and that the Patent Trial and Appeal Board (the "Board") may construe certain terms within the challenged claims of the '393 patent in rendering a decision on institution or a final written decision.

43. I have been informed and understand that, in an *inter partes* review, the claim terms are to be given their ordinary and customary meaning as understood by a POSITA, in light of the prosecution history pertaining to the

patent. In performing my analysis and rendering my opinions, unless otherwise noted, I have interpreted claim terms for which Nintendo has not proposed or applied a particular construction by giving claim terms the ordinary meaning they would have to the POSITA reading the '393 patent in light of its specification.

44. I also understand that under 35 U.S.C. § 112(f), “[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

45. I understand that construing means-plus-function claim terms involves two steps. The first step is to identify the claimed function. The second step is to identify the structures that are described in the specification that are clearly linked or associated with the identified function. I understand that a means-plus-function claim term is limited to the structures described in the specification that correspond to the claimed function, and their equivalents. I further understand that expressing an element in a claim in terms of a “means for ...” leads to a presumption that 35 U.S.C. § 112(f) applies, but even if an element does not use the term “means,” it can still be a means-plus-function limitation.

D. Unpatentability

46. I understand that a patent claim is unpatentable if it is anticipated or rendered obvious by the prior art. I have been informed and understand that a patent claim is anticipated if a single prior art reference discloses each and every limitation of the claim, arranged as set forth in the claim. I further understand that if a reference fails to expressly disclose one or more limitations of the claim, the claim is anticipated if the reference inherently discloses the missing limitations.

47. I have further been informed and understand that a patent claim is unpatentable if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a POSITA as of the priority date for the claimed invention. I understand that a determination of whether a claimed invention would have been obvious requires taking into consideration certain factors, which include: (a) the scope and content of the prior art, (b) the differences between the claimed invention and the prior art, and (c) the level of ordinary skill in the art. I further understand that secondary considerations, such as commercial success, the solution of long-recognized but unsolved needs, failures of others, etc., may be considered in a determination of obviousness.

48. I understand that the claimed subject matter would have been obvious to a POSITA if, for example, it results from the combination of known elements according to known methods to yield predictable results; the simple substitution of

one known element for another to yield predictable results; use of a known technique to improve similar devices in the same way; applying a known technique to a known device ready for improvement to yield predictable results; or applying known work in a field to create a variation in light of design incentives or market forces if the variation would yield predictable results. I have also been informed that the analysis of obviousness may include recourse to logic, judgment, and common sense available to a POSITA that does not necessarily require explicit disclosure in any reference.

49. I understand that, in determining obviousness, hindsight derived from consideration of the patent should not be used.

50. I understand that “prior art” can include patents and printed publications. I further understand that, for purposes of an *inter partes* review, only patents and printed publications may be used as prior art to show a claim is unpatentable.

51. As noted above, I am informed and understand that the ’393 patent is subject to review under 35 U.S.C. §§ 102 and 103, as amended by the American Invents Act, because one or more of its claims has an effective filing date of after March 16, 2013. In light of this, I understand that a patent or published patent application will be prior art as to the ’393 patent if filed before the earliest effective

filing date of the claimed invention(s), while other types of printed publications will be prior art if they are publicly available before that date.

V. BACKGROUND OF THE TECHNOLOGY

52. Generally speaking, the '393 patent concerns input devices for use with portable computing devices, where the input devices are for controlling video games. The title of the patent is “Game Controller with Structural Bridge.” '393 patent (Ex. 1001) at (54). The patent has also been classified as being directed to “game controllers with detachable joystick handles.” '393 patent (Ex. 1001) at (51) (CPC Code A63F 13/24).

53. Since the 1970s, video game systems have increasingly become portable. For example, Nintendo released the Game & Watch Series in 1980. These were portable handheld video game devices. An example of the Game & Watch Series (Donkey Kong, 1982) is shown below—Donkey Kong had the world’s first directional pad or d-Pad.



54. Later, in 1989, Nintendo released the Gameboy.



55. It was known at this time that a portable video game device could be provided with different or additional control features. One example of this was the Joyplus Handy Boy. The Handy Boy attached to the front, left, and right sides of the Gameboy, had an opening for the screen, and a joystick, enlarged fire buttons, lights, a magnifying glass, and speakers.



56. In the 1990s as video game companies continued to design portable gaming systems (such as the Sega Game Gear), computing companies began to unveil prototypes of smaller and more powerful portable computing devices, having different dimensions. These devices were expensive, and usually had high-price points, making them primarily targeted at business consumers.

57. For example, in 1996, Apple released the Newton MessagePad 2000. One accessory for that device was a case that would allow the MessagePad to have a keyboard and to be operated like a computer, adding functionality for users.



58. One year later, Palm released the Palm Pilot. As with the MessagePad, accessory makers recognized that peripheral input devices could be attached to the PalmPilot to provide added functionality. For example, GoType! released a device that nested and attached to the PalmPilot, providing the PalmPilot with full keyboard functionality.



59. Further, in about 2005, manufacturers took steps to bring gaming to cell phones. For example, Flyin Studio launched a controller for mobile flip phones called “XEG.” Per the company, the controller had “8-direction keys, action keys, [and a] dual-trigger button,” and it worked “with almost every kind of cell phone,”

allowing users to “enjoy [] exciting mobile games like shooting game, simulation game, and role-play game.”²



60. Mobile computing meanwhile took several leaps forward in the 2000s, both in terms of power and reduced costs. And in 2007, Apple released a revolutionary step forward in mobile computing—the iPhone.



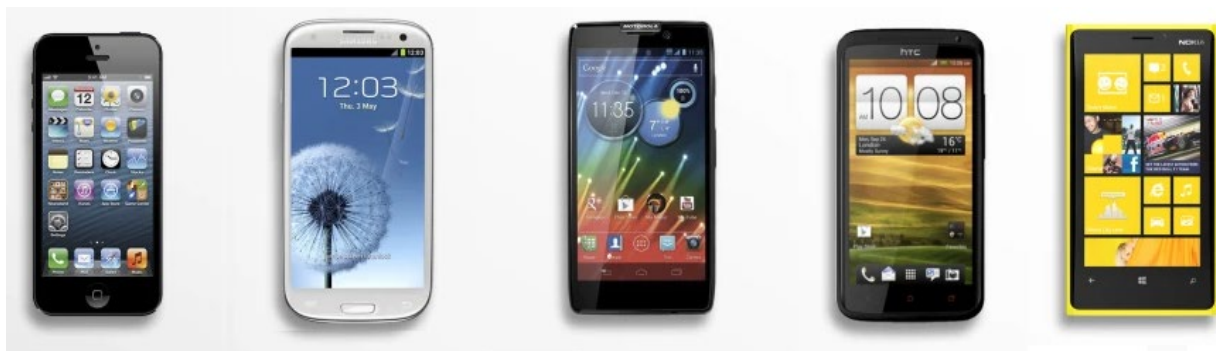
² Rose Kim, *Mobile game controller ‘XEG’ working with all kinds of cell phones*, AVING GLOBAL NEWS NETWORK, <https://us.aving.net/news/articleView.html?idxno=3311> (Nov. 10, 2005) (last visited February 17, 2023).

61. The iPhone was the first mass-marketed, touchscreen-based, handheld computer system to achieve widespread commercial success. It was a massive success by any standard and it gave rise to a market with many similar products—the smartphone generation. Indeed, Apple released seven iPhone models between 2007 and 2015—about one a year—and generally speaking, each model had either slightly or significantly different dimensions (as is demonstrated below).



62. In 2008, one year after the launch of the original iPhone, the Apple App Store opened, allowing consumers to download software applications (“apps”) for their iPhone devices, further increasing the popularity of the platform. In 2010, Apple introduced the iPad, a tablet-sized version of the iPhone.

63. Further, other companies, such as Samsung, LG, HTC, and Google, likewise entered this market and released multiple models of smartphones and/or mobile computing devices. For example, in 2012, five of the most cutting-edge phones were (shown left to right below) the Apple iPhone 5, the Samsung Galaxy S III, the Motorola Razr Maxx HD, the HTC One X+, and the Nokia Lumia 920, all of which had different shapes and sizes.



64. Gaming quickly became the number one application category on these types of devices, with tens of millions of games downloaded every year. However, the market quickly found that gamers preferred playing with physical controls, such as buttons, joysticks and d-pads, which resembled more traditional gaming control layouts pioneered by companies like Nintendo, Sony, and Microsoft. Some types of games simply do not work well with touchscreen (virtual) controls or tiny keyboards used on PDAs and other portable computers. There were also unanticipated problems with playing on a touchscreen, not the least of which was that the hand that is accessing the on-screen controls is also blocking the view of

the game screen. Consequently, a market quickly evolved for devices which could offer a greater selection of game controller choices on mobile computing devices.

65. As a further backdrop to that emerging market and the prior art described in this declaration, throughout the 2000s, video game controller developers, such as MadCatz and others, continued efforts to develop game controllers and peripherals that provided gamers with additional functionality and choice. One example of this work was removable or “swappable” game controls for use with a portable computing device, which were well known by early 2010s and came in multiple forms.

66. Even the earliest video game systems featured swappable input devices, or controllers. Early designers recognized the importance of giving the consumer the choice of what type of controller to use. For example, the Atari 2600, released in 1977, offered a choice of easily-swappable controllers:



Atari 2600 game controllers using common attachment structure^{3, 4}

³ https://images-na.ssl-images-amazon.com/images/I/81mOT6QG9GL_SX425_.jpg (last visited February 14, 2023).

67. One of the earliest handheld gaming systems, Microvision, released by Milton Bradley in 1979, was the first portable game system to feature interchangeable game cartridges. In addition to swapping out the game program, the machine also allowed one to swap out the input device, or controller, making it unique to each game. See the image below highlighting the different control schemes for each game:



Microvision game cartridges with swappable input devices⁵

⁴ <https://artsandculture.google.com/asset/video-game-controller-atari-paddle-controllers/SAFqMWGDbWOAXA> (last visited February 14, 2023).

⁵ <https://www.popculturemaven.com/wp-content/uploads/2014/02/microvision-and-carts.jpg> (last visited February 17, 2023).

68. The Microvision cartridges were fitted with an attachment structure to securely connect them to the game unit:



Closeup of Microvision cartridge attachment structure⁶

69. Additionally, game accessory companies also developed products with interchangeable input controls. For example, the game accessory manufacturer Radica came out with a customizable game controller in 2004 for the PS2, called the Radica Phoenix Customizable Gamepad:



Radica Phoenix Customizable Gamepad⁷

⁶ Gamester81, *Milton Bradley Microvision Handheld Review*, <https://www.youtube.com/watch?v=CA5L3ppGcNQ> (uploaded March 29, 2009) (last visited February 17, 2023).

70. From the website PSPNews⁸, “The Radica 74160 Phoenix Revolution contains unique interchangeable modules that enable gamers to completely alter the set up of the controller by repositioning the thumb sticks and action buttons according to their own personal preference.” A photo showing the interchangeable input devices (or game control modules) is above.

71. The company Saitek likewise introduced a customizable game controller in 2008, called the Saitek Cyborg Rumble Pad P3600.



Saitek Cyborg P3600 Rumble Pad⁹



Saitek input module attachment structure¹⁰

⁷ Phoenix Revolution PlayStation PS2 Game Controller (IT40222), ITMEDIA.SK, [http://itmedia.sk/olcso/IT4022/Szerszámok,%20alkatrészek/Joystick%20\(Game%20Controller\)/Playstation%202/Phoenix_Revolution_Playstation_PS2_Game_Controller](http://itmedia.sk/olcso/IT4022/Szerszámok,%20alkatrészek/Joystick%20(Game%20Controller)/Playstation%202/Phoenix_Revolution_Playstation_PS2_Game_Controller) (last visited February 17, 2023).

⁸ Radica Phoenix Revolution Customizable Gamepad for PS2, PSP-NEWS.DCUMU.CO.UJ, <http://psp-news.dcemu.co.uk/radica-phoenix-revolution-customizable-gamepad-for-ps2-65565.html> (last visited February 17, 2023).

⁹ Will Greenwald, *Satiek's Cyborg Rumble Game Pad Lets You Flip The Stick*,

72. Pictured above, the Saitek gamepad allowed the player to remove an input module (containing the joystick and d-pad) and re-insert it at a different orientation to adjust the position of the joystick on the gamepad; see the DragonSteelMods review¹¹, “The pad is like other Saitek pads essentially, but the ‘Cyborg’ naming comes in with a part of the controller they call the ‘Cyborg Module’, the left side of the pad features a section that pops out, it includes the analogue stick and the d-pad, the whole thing can be rotated 180 degrees so the user can decide where the stick should be.”

73. In 2011, the accessory manufacturer MadCatz introduced their ProModule system¹², a modular game controller. The system allowed the player to

CNET.COM (last updated Mar. 24, 2008), <https://www.cnet.com/news/saitekscyborg-rumble-game-pad-lets-you-flip-the-stick/> (last visited February 17, 2023).

¹⁰ http://www.dragonsteelmods.com/Images/reviews/saitek-cyborg-rumble/resize/tn_saitek-cyborg8.JPG (last visited February 17, 2023).

¹¹ Kristofer Brozio, *Review: Saitek Cyborg Rumble Pad P3600*, DRAGONSTEELMODS.COM (last modified Oct. 20, 2007), <https://www.dragonsteelmods.com/review-saitek-cyborg-rumble-pad-p3600-2/> (last visited February 27, 2023).

¹² Mike Fahey, *Mad Catz’s Major League Gaming Controllers Can Change The Way You Play*, KOTAKU (last modified Aug. 22, 2011),

swap out input controls, including d-pads, joysticks and buttons, on a given controller. A photo of the removable input devices is below.



Mad Catz removable input devices¹³

74. The removable input devices of the product included attachment structures and electrical connections to facilitate swapping of game controls.



Mad Catz removable game control elements with attachment structures^{14,15}

<https://kotaku.com/5833385/mad-catzs-major-league-gaming-controllers-can-change-the-way-you-play> (last visited February 17, 2023).

¹³ http://3.bp.blogspot.com/-P83ufX9xdaE/Tw1VNeX6Q9I/AAAAAAAAAfU/krFvECjU_oU/s1600/6.jpg (last visited February 17, 2023).

¹⁴ <https://s.blogcdn.com/www.engadget.com/media/2012/01/compon-modula388.jpg> (last visited February 17, 2023).

75. As discussed above, as long as there have been portable computing and video game devices, there has been a market for control accessories that give users options in terms of variety, layout, and capabilities above and beyond what is provided by the computing device and/or gaming system. Indeed, the concept of swappable/removable controls is certainly nothing new. Aftermarket control accessories such as keyboard modules, joysticks, paddles, gloves, dance-pads, exercise devices, simulated music instrument controllers, steering wheels, driving pedals, wireless controllers, touch pads and the like have been available as computing and gaming add-ons since at least 1980.

VI. THE CHALLENGED '393 PATENT

A. Background and '393 Patent Specification

76. The '393 patent discloses a game controller that attaches to a separate portable computing device. The '393 patent claims priority to a number of Gamevice patents and is a continuation-in-part of U.S. Patent No. 9,126,119. Nintendo retained me to offer my expert opinions on the '119 patent in support of two *inter partes* review petitions filed in 2018. See IPR2018-0521 and IPR2018-0522. I understand that the Board has since determined that all challenged claims of the '119 patent are unpatentable in view of the prior art discussed below.

¹⁵ <http://3.bp.blogspot.com/-uLvxZyN3ln4/Tw1VMqhfnI/AAAAAAAAAfl/FPEWIwzXWPU/s1600/5.jpg> (last visited February 17, 2023).

77. Additionally, as a continuation-in-part of the '119 patent, much of the '393 patent's written description comes from the '119 patent. To be more specific, more than half of the figures and the text in the '393 patent is from the '119 patent. The common portions are: '393 patent, Figures 1–25; column 1, line 56 to column 3, line 6; and column 4, line 12 to column 11, line 17.

78. The '393 patent discloses multiple embodiments, but in every instance, the embodiments include a computing device and an input device that can control actions on the computing device.

79. The original embodiment, which was disclosed in the first application to which the '393 patent claims priority, is shown in Figure 1 below. This figure shows an electronic computing device (tablet computer) seated in an external controller with two sides and a bottom bridge section (yellow). Each side of the controller contains input controls such as buttons, a d-pad, or joysticks, and could also include keyboard modules. The

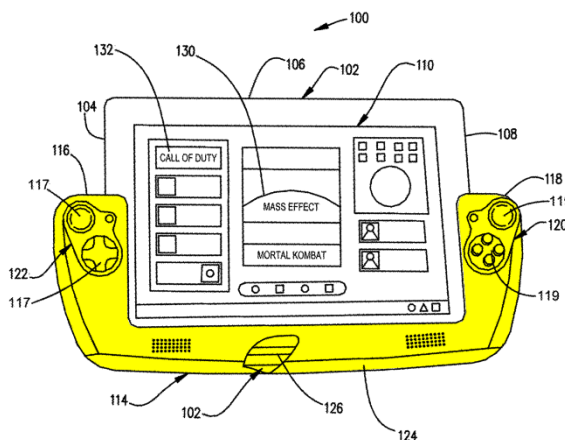


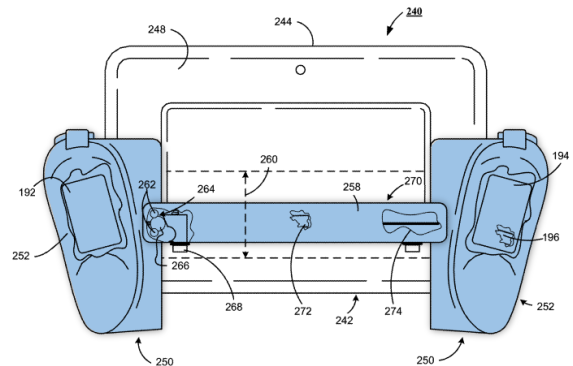
FIG. 1

input controls could be removable modules. '393 patent (Ex. 1001) at 4:12–5:21.

80. The structure into which the computing device is seated in Figure 1 is described as “a three sided structure 128 (of FIG. 5) (also referred to herein as a u-

shaped structure 128 of the input device 114), in which the computing device 102 nests, such that the computing device 102 is confined by the u-shaped structure 128, and the u-shaped structure 128 mitigates inadvertent removal of the computing device 102 from the u-shaped structure 128” ’393 patent (Ex. 1001) at 5:22–31.

81. Figure 14 below shows a modified controller that contains two game control modules (252) connected to each other by a structure external to a computing device (blue). The computing device could be positioned within this input device. The external structure is a structural bridge (258) that connects the game control modules to each other via a “fastening detent.” ’393 patent



(Ex. 1001) at 8:31–9:15. The bridge in this embodiment can have a “communication link” that provides a “communications module” and/or alternatively “a signal pathway 274, for use in passing signals between the pair of control modules 252.” ’393 patent (Ex. 1001) at 8:50–54.

83. Figure 16 below shows the back of an alternative combination. In this embodiment, the two game control modules (which make up the “input device”) are connected to the two confinement structures (316), which confine the computing device and are secured together by a structural bridge (310/322) (blue). ’393 patent (Ex. 1001) at 9:21–11:17. The bridge secures the confinement structures to each other by way of a “fastening mechanism” such as “a soft draw latch.” ’393 patent (Ex. 1001) at 9:54–59. The fastening mechanism (soft draw latch) “facilitates an expand and contract of the distance between the pair of confinement structures 316” and this in turn allows for the input device to be attached to the computing device by way of “the application of sufficient compressive load being placed on the computing device 302 to securely hold the computing device between the pair of confinement structures” ’393 patent (Ex. 1001) at 10:8–20.

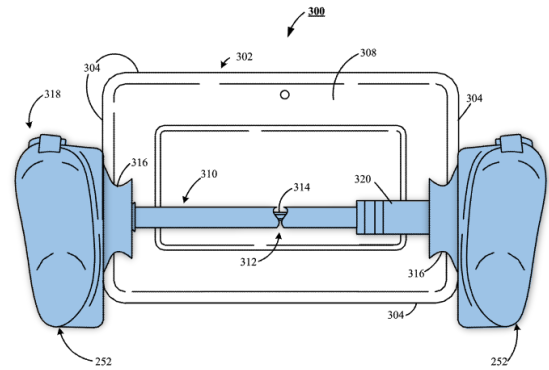


FIG. 16

84. In this embodiment, the device has a “communication port” that is identified as the structural bridge, the two confinement structures, and a communication link, which may be a wired or wireless connection.

85. Figures 26–34 show the first set of embodiments in the ’393 patent not described in the ’119 patent. ’393 patent (Ex. 1001) at 11:18–14:41. In this set, an input device can be placed on two ends of differently-sized smart phones, shown to be iPhones in Figure 30 (at right). The input device contains two game control modules that confine and “adaptively and snugly accommodate” two opposing sides of the computing devices. ’393

87. The '393 patent further describes a tensioning mechanism 446. The patent more particularly describes that there is a “biasing structure 460” (shown in Figure 28 as a coil spring) that communicates with an attachment stay 448 to “provide[] variable tension between the structural bridge 422, and the second control module 404, thereby accommodating a predetermined amount of lateral movement of the structural bridge.” '393 patent (Ex. 1001) at 13:4–16. The challenged claims do not recite this set of embodiments.

88. Another set of similar embodiments is shown in Figures 35–40, where the computing device appears to be an iPad. The patent describes that in this set of embodiments an “input device” is

provided with two control modules (502, 504) joined together by a structural bridge. '393 patent (Ex. 1001) at 14:43–17:6. The patent further describes that the

structural bridge is joined to the

control modules by way of a “tensioning mechanism 546,” which appears to have nearly identical features to the “tensioning mechanism 446.” *See* '393 patent (Ex. 1001) at Fig. 38. As with the previous set of embodiments, the challenged claims do not recite this set of embodiments.

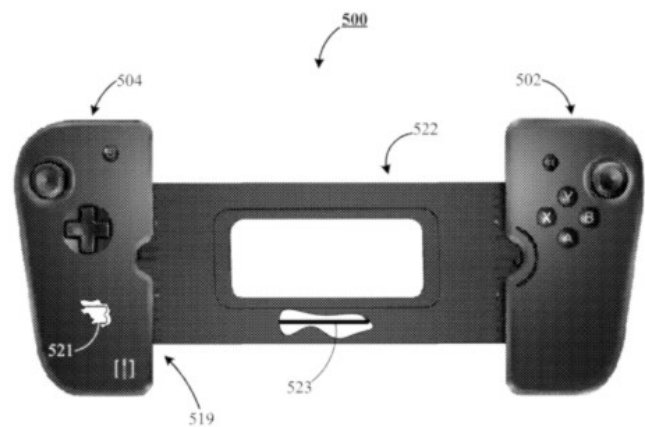


FIG. 35

89. Figures 41–44 disclose additional embodiments, also not recited in the challenged claims, providing “touch sensitive control module[s]” (*e.g.*, touch screens) located at various locations either on the game control modules or on the structural bridge. ’393 patent (Ex. 1001) at 17:7–38.

B. Challenged Claims

90. I understand that Nintendo is challenging the patentability of independent claim 1 of the ’393 patent and its dependent claims 2–7. I discuss these claims below.

91. Claim 1 recites a combination of the following limitations: a computing device, game control modules, confinement structures, a structural bridge, and communication links.

92. These components were also recited in the claims of the ’119 patent. More specifically, the only independent claim of the ’119 patent—claim 1—recited (i) “a computing device providing a plurality of sides ... and a back”; (ii) a “pair of confinement structures adjacent to and confining the computing device on at least two opposing sides of ... the computing device”; (iii) “a pair of control modules”, which in dependent claim 5 were “game control modules” that “controll[ed] images displayed on the display screen of the computing device”; and (iv) “a structural bridge securing the pair of confinement structures” one to the other, which in dependent claim 9 was a “ri[gi]d” structural bridge. ’119 patent

(Ex. 1012) at 9:62–10:27, 10:41–45, 10:56–57. I understand that the Board has since determined that independent claim 1 of the '119 patent is unpatentable over prior art discussed in this declaration, along with dependent claims 5 and 9, as well as all other claims of the '119 patent that Nintendo challenged (claims 2–4, 6–8, 10, and 13–21). IPR2018-01521, Final Written Decision (Ex. 1010); IPR2018-01522, Final Written Decision (Ex. 1011).

93. Returning to the '393 patent, claim 1, generally speaking, similarly recites a computing device, a pair of confinement structures, a communication link, a rigid structural bridge, and a pair of electronic game control modules, where the confinement structures are separate and distinct from the game control modules and the confinement structures are also separate and distinct from the structural bridge.

94. Claim 1 is reproduced in full below.

1. A combination comprising:

a computing device;

a pair of confinement structures, the pair of confinement

structures interacting with the computing device and

adjacent at least two opposing sides of the computing

device, but not more than three sides of the sides of

the computing device, each of the pair of confinement

structures comprising a communication link, each of the communication links configured for electronic communication with the computing device;

a rigid structural bridge disposed between and secured to the pair of confinement structures, the rigid structural bridge comprising a passageway between the pair of confinement structures, the passageway promotes electrical communication between the communication link of a first confinement structure of the pair of confinement structures and the computing device, the passageway further promotes electrical communication between the communication link of a second confinement structure of the pair of confinement structures and the computing device; and

a pair of electronic game control modules, each electronic game control module of the pair of electronic game control modules is secured to and interacts with a corresponding confinement structure of the pair of confinement structures, each electronic game control module in electronic communication with the

communication link of its corresponding confinement structure, wherein each electronic game control module is a separate and distinct structure from each of their corresponding confinement structures, forming no structural portion of their corresponding confinement structures, and in which each of the pair of confinement structures are separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge.

95. Challenged dependent claims 2–7 add no significant limitations over those recited in the independent claims. They are reproduced in full below:

2. The combination of claim 1, in which the rigid structural bridge supports electronics associated with the computing device.
3. The combination of claim 2, in which the computing device further comprising a back, the back provides an internal surface, an external surface and cooperates

with the at least two opposing sides of the computing device.

4. The combination of claim 3, in which the rigid structural bridge cooperates with the back of the computing device.
5. The combination of claim 4, in which the rigid structural bridge cooperating with the back of the computing device is adjacent to the external surface of the back of the computing device.
6. The combination of claim 4, in which the computing device comprises an electronic display screen, and wherein at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link to the computing device, the signals passed to the computing device controlling images displayed on the electronic display screen of the computing device.

7. The combination of claim 2, in which the electronics supported by the rigid structural bridge is a communication module associated with the computing device.

C. Priority of Claims

96. The application for the '393 patent was filed on December 21, 2018. '393 Patent (Ex. 1001) at (22). The '393 patent claims priority to a series of continuation-in part applications. '393 patent (Ex. 1001) at (63).

97. Several of these applications were filed **before Feb. 2, 2015**, including application No. 13/779,987 (filed on Feb. 28, 2013), application No. 13/681,153 (filed on November 19, 2012), application No. 13/494,801 (filed on Jun. 12, 2012), and provisional application No. 61/577,709 (filed on December 20, 2011). I have reviewed those applications. In my opinion, at least some of the subject matter that is recited in independent claim 1 (and its dependent claims) is not supported by the written description of the pre-February 2, 2015 applications listed above. I therefore understand those claims would have, at best, a priority date no earlier than February 2, 2015. I further note that Gamevice served interrogatory responses in ITC Investigation No. 337-TA-1197 in which it contended claims 1–7 had a priority date of February 2, 2015. Ex. 1016. I express

no opinion as to whether February 2, 2015 is the correct priority date, but I use that date as the date of the alleged invention for purposes of this declaration.

98. Claims 1 (and its dependent claims), for example, require that “each of the pair of confinement structures are separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge.” Based on my review of the pre-February 2, 2015 applications listed above, none discloses confinement structures separate from a structural bridge. Thus, claims 1–7 would have, at best, a priority date of no earlier than February 2, 2015.

D. Related Matters

99. I understand that during the prosecution of the '393 patent, Gamevice submitted a terminal disclaimer to overcome an obviousness-type double patenting rejection in view of the claims of U.S. Patent No. 9,855,498, which the Examiner issued because he believed the claims under examination (which ultimately issued) were patentably indistinct from the claims of the '498 patent. Ex. 1009 at 44–46, 77–78.

100. I further understand that during the prosecution of the '498 patent, Gamevice submitted a terminal disclaimer to overcome an obviousness-type double patenting rejection in view of the claims of the '119 patent, which the Examiner issued because he believed the claims under examination (which

ultimately issued) were patentably indistinct from the claims of the '119 patent.

Ex. 1013 at 167–68.

101. I thus understand that, from the Examiner's perspective, no meaningful differences existed between the claims of the '393 patent, the claims of the '498 patent, and the claims of the '119 patent.

102. As noted above, I was Nintendo's expert in the '119 IPRs, which were filed on August 30, 2018. In those IPRs, Nintendo submitted that claims 1–10 and 13–21 of the '119 patent were anticipated or rendered obvious by several prior art publications, including the prior art at issue here. The Board instituted those IPRs on March 11, 2019, and the IPRs proceeded to an oral hearing on December 10, 2019. The Board issued Final Written Decisions in the IPRs on March 10, 2020, determining that all challenged claims of the '119 patent (1–10 and 13–21) were unpatentable in view of the combination of two prior art references (Willner and Park), Ex. 1011 at 22, and that claims 1, 3–10, and 13–21 were unpatentable in view of the combination of two other prior art references (Schoenith and Park), Ex. 1010 at 22. These references, along with two others (Kessler and Hirschman), are the prior art references raised in the present petition and described in more detail below. I have been informed that Gamevice did not appeal these IPRs decisions.

103. I have been informed that in March 2020, Gamevice filed a complaint

to institute an investigation before the International Trade Commission, in which it alleged that the Nintendo Switch infringed certain claims of the '393 patent. I further understand that that investigation proceeded to a final hearing in December 2020; and that in July of 2021, the Administrative Law Judge ("ALJ") issued his Initial Determination, finding that the Nintendo Switch did not infringe any of the asserted claims and further finding, by clear and convincing evidence, that claims 1–4 and 6–7 of the '393 patent are invalid over, among other prior art, the combinations of (i) Willner and Park and (ii) Schoenith and Kessler. Ex. 1018. I have been informed that Gamevice sought review of the Initial Determination by the full Commission, and that the full Commission declined to review the ALJ's non-infringement and invalidity determinations. Ex. 1019. I have been further informed that Gamevice filed a notice of appeal to the Federal Circuit, but dismissed the appeal in February of 2022. Ex. 1020.

104. I understand that, after the Commission's determination not to review or reverse the ALJ's Initial Determination, Gamevice moved to amend its complaint in a pending patent infringement litigation before the United States District Court for the Northern District of California (Case No. 18-cv-1942-RS) to allege that the Nintendo Switch infringed claims 1–4 and 6–7 of the '393 patent, among other claims. I understand that Gamevice's motion to amend was granted thereafter, and that Gamevice filed its amended complaint on March 7, 2022.

VII. CLAIM CONSTRUCTION

105. As noted above, I have been informed and understand that, in an *Inter Partes* Review, the claim terms are to be given their ordinary and customary meaning as understood by a POSITA in light of the prosecution history pertaining to the patent.

106. In performing my analysis and rendering my opinions, I have applied the constructions identified below, which are from District Court for the Northern District of California’s January 19, 2023 claim construction order in Case No. 18-cv-1942-RS. Ex. 1028. I have given all other claim terms the ordinary meaning they would have had to a POSITA reading the ’393 patent in light of its specification at the time of the alleged invention, except where, as noted below, I have applied the parties’ agreed claim constructions in the Northern District of California Case.

A. “Computing Device” (claim 1)

107. I understand that the District Court construed “computing device” as “electronic equipment controlled by a CPU [central processing unit].” Ex. 1028 at 5–6.

B. “A pair of confinement structures” (claim 1)

108. I understand that the Board previously remarked that “confinement structures” as claimed in the ’119 patent “encompass[] a ‘three-sided structure’ in which the computing device ‘is fully nested’ ... as well as structures that serve as a

‘cradle’ to ‘securely hold’ the computing device.” IPR2018-01521, Final Written Decision (Ex. 1010) at 11; IPR2018-01522, Final Written Decision (Ex. 1011) at 11.

109. I understand that the District Court considered whether to apply Section 112(f) to this term, and although it considered the issue a “borderline case,” it ultimately chose not to construe the term under Section 112(f). Ex. 1028 at 10–12. I understand that District Court instead chose to construe the term as: “physical component(s) that hold(s) a computing device.” Ex. 1028 at 12.

110. A POSITA would have considered the District Court’s construction to be consistent with the Board’s previous remarks in the ’119 IPRs. For example, the District Court’s construction covers “physical components” that “hold” a computing device, while the Board’s remarks encompass “structures” that “securely hold” a computing device.

C. “Passageway” (claim 1)

111. I understand that the District Court construed “passageway” as “a space that accomodates a communication wire.” Ex. 1028 at 12–13.

D. “Communication link” (claim 1)

112. I understand that the District Court construed “communication link” as “a component for reception and transmission of data.” Ex. 1028 at 13–14.

E. “Structural Bridge” (claim 1)

113. I understand that the District Court construed “structural bridge” as “a physical apparatus that secures two or more components to each other across a distance.” Ex. 1028 at 14–15.

F. “Electrical communication” (claim 1)

114. I understand that the District Court construed “electrical communication” as “the flow of information between two components represented by the use of electricity.” Ex. 1028 at 18.

G. “Electronic communication” (claim 1)

115. I understand that the District Court construed “electronic communication” as “the flow of information between two components represented by the use of electricity controlled by and/or mediated through an electron device, such as a vacuum, gas, transistor, or semiconductor.” Ex. 1028 at 16–18. In doing so, the court noted that “while ‘electrical’ and ‘electronic’ are closely related, the separate use of both terms in the Asserted Patents strongly suggests the terms have different meanings. ... The difference appears to lie in the role played by ‘electron devices,’ which mediate the flow of electrons. ... These stand in contrast to dictionary definitions of ‘electrical,’ which do not mention such devices.” Ex. 1028 at 17–18.

VIII. OVERVIEW OF THE PRIOR ART

116. The subject matter of the '393 patent involves game controllers for portable computing devices. Well before the '393 application and any related priority applications were filed, there were a large number of prior art patents, patent applications, and publications directed to such controllers. Gamevice itself disclosed more than 70 references to the United States Patent and Trademark Office during prosecution. '393 patent file history (Ex. 1009) at 90–99, 317–318.

117. The primary prior art references used in the unpatentability grounds are set forth in the table below. A description of the prior art follows. The prior art references are exhibits to the accompanying petition.

Prior Art Reference	Abbreviation
Willner, U.S. Patent Application Publication No. 2001/0045938 A1	Willner (Ex. 1003)
Park, Korean Patent No. 10-2011-0116892	Park (Ex. 1004)
Schoenith, U.S. Patent No. 9,539,507 B2	Schoenith (Ex. 1005)
Kessler, International Patent Application No. WO 2014/079264 A1	Kessler (Ex. 1006)
Hirschman, U.S. Patent Application Publication No. 2012/0271967 A1	Hirschman (Ex. 1007)

118. In the following sections, I provide a brief summary of each of the prior art references further described in my analysis below. Based on the filing dates and/or publication dates of the below-listed prior art, and my understanding

of the priority dates for the challenged claims of the '393 patent, I understand each is prior art to challenged claims of the '393 patent.

A. Willner

119. Willner is titled “HAND GRIPPABLE COMBINED KEYBOARD AND GAME CONTROLLER SYSTEM,” and was published on November 29, 2001. Willner (Ex. 1003) at (43), (54). Willner disclosed a game controller comprised of two hand grippable housings (controllers), which could be attached and detached to a computing device. Willner (Ex. 1003) at Abstract, ¶ 13, Fig. 4 (above).

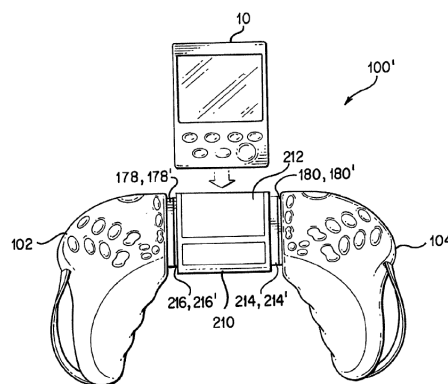


FIG. 4

120. The housings connected to the portable computer via a separate adaptor into which the computing device was held, or could alternatively communicate directly with the computing device wirelessly. Willner (Ex. 1003) at ¶ 50. In the former situation, the hand grippable housings

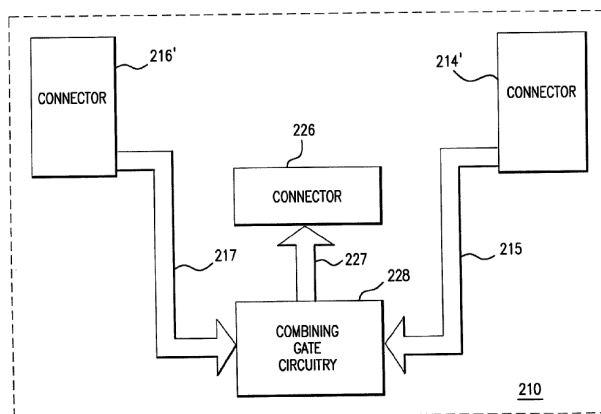


FIG. 8

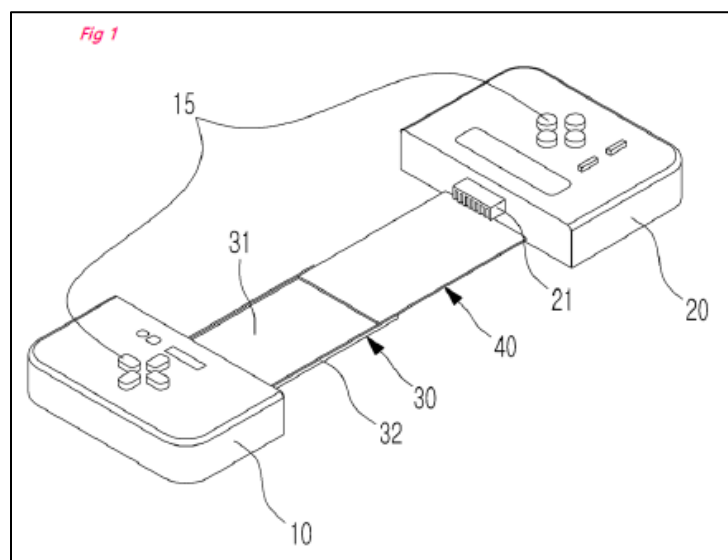
attached to connecting portions 214 and 216 of the adaptor, which “matingly engage” with connecting portions 178, 178', 180, and 180' of the housings (e.g.,

pin-connectors / sockets). Willner (Ex. 1003) at ¶¶ 46, 50, 51. The housings would then be electrically connected to the computing device through a bus 215 / 217, as shown in Figure 8 (right). Willner (Ex. 1003) at Fig. 8, ¶ 51.

B. Park

121. Park is titled “GAME PAD DEVICE FOR MOBILE PHONE,” and is a Korean application published on October 26, 2011. Park (Ex. 1004) at (43), (54).

122. Park taught a gamepad apparatus that was used to accommodate and allow physical gaming controls for use with a handheld computing device. Park (Ex. 1004) at Abstract, Fig. 3. Its apparatus consisted of two controller bodies—one on the left and one on the right—connected via an adjustable bridge. Park (Ex. 1004) at Abstract. The device confined a mobile phone lengthwise on two sides between the walls of the controller bodies with the adjustable bridge supporting the back of the phone. Park (Ex. 1004) ¶ 13. Figure 1 below shows Park’s device:

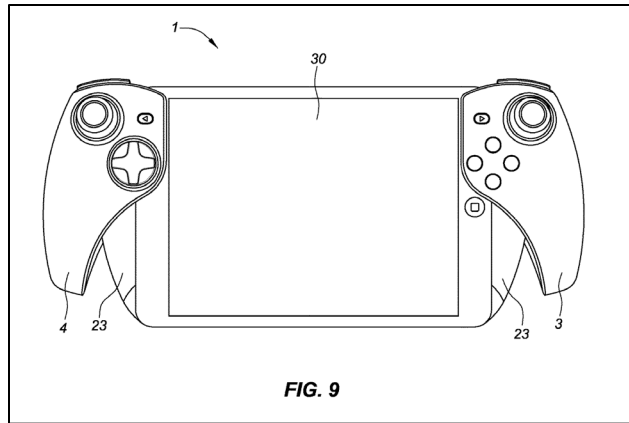


123. The bridge contained two sliding panels with recessed guide grooves and catching holes that locks them, and thus, the confining walls of the controllers, together. Park (Ex. 1004) at ¶ 9. Additionally, Park’s left and right controller bodies were electrically connected via a cable that runs through the bridge. Park (Ex. 1004) at Abstract, Claim 1, ¶¶ 8, 13, 26, 36.

C. Schoenith

124. Schoenith is titled “APPARATUS AND METHOD FOR CONTROLLER ACCESSORY,” and issued on January 10, 2017. Schoenith (Ex. 1005) at (45), (54). It was filed July 11, 2014 and claims priority to provisional applications filed July 11, 2013 and September 18, 2013. Schoenith (Ex. 1005) at (22), (60).

125. Schoenith disclosed a game controller apparatus that accommodated handheld smart devices such as iPhones and iPads and provided physical input controllers for use with gaming on those types of computing devices. Schoenith (Ex. 1005) at 4:35–39, 4:57–60. Figure 9 of Schoenith below shows the controller accessory, including its right side panel, left side panel, and “cradle,” which could be detachable or nondetachable. Schoenith (Ex. 1005) at 2:14–19. The right and left side panels are gaming controllers that included input controls, such as a joystick, d-pad, buttons, or others, used to control a game on a smart device. Schoenith (Ex. 1005) at 4:40–67.



126. Schoenith further explained that its cradle could be attached to the right and left side panels and secure a handheld smart device. Schoenith (Ex. 1005) at 5:15–26, 6:15–20, 7:14–30, 8:21–36. The cradle could be any size, shape or configuration to accommodate a smart device, and could have structures to secure accommodation of the smart device, such as a depression portion, slots, and/or raised walls on any of the cradle’s sides. Schoenith (Ex. 1005) at 6:15–50, 6:55–61. It could also have “connection parts” such as snap-fits, mechanical keys, or support wings, to connect to the control panels, which had their own attachment openings or connections. Schoenith (Ex. 1005) at 7:14–33.

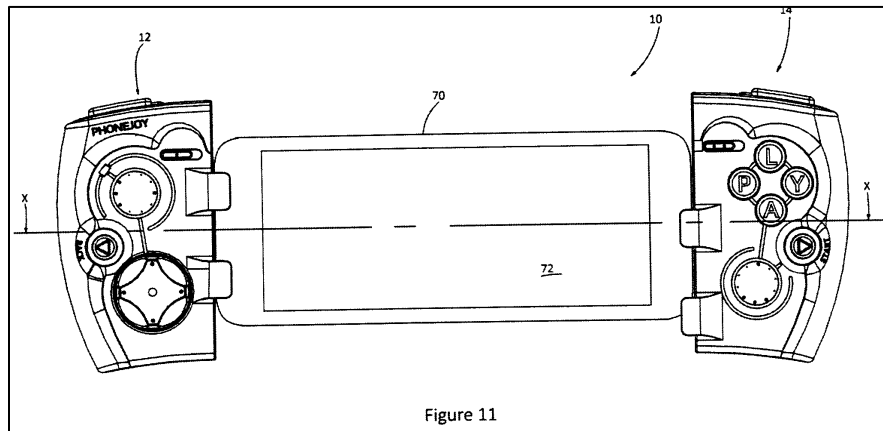
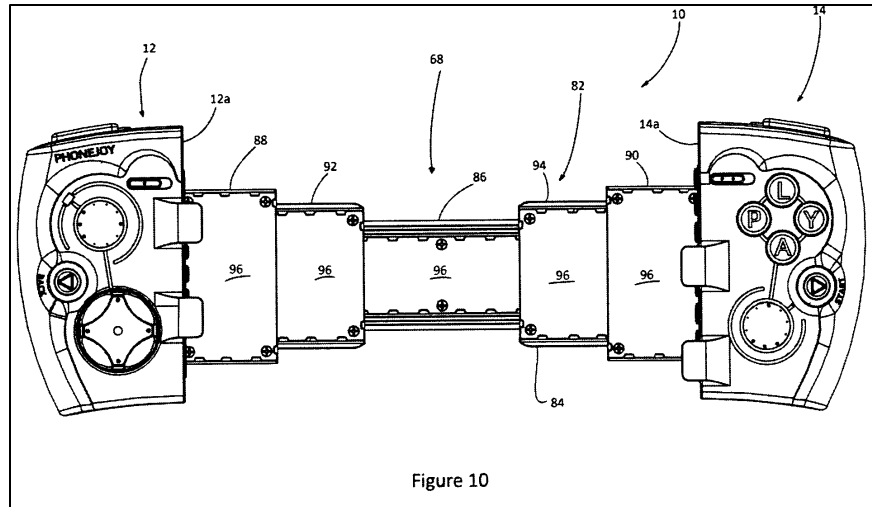
127. Schoenith’s controller also has communications capabilities. The reference teaches that the controller could include a wireless connection such as Bluetooth or infrared LEDs for exchanging data between the smart device and the controller “in the right side panel, left side panel, the chassis, the cradle, or a combination thereof.” Schoenith (Ex. 1005) at 7:34–41. The device could also have a wired connection such as a power connector (a 30-pin connector or Apple

Lightning® connector) and a docking port to which the device could attach via the panels or the cradle. Schoenith (Ex. 1005) at 7:42–66.

D. Kessler

128. Kessler is titled “A HANDHELD APPARATUS FOR COMMUNICATING CONTROL SIGNALS TO AN INFORMATION PROCESSING DEVICE,” and issued on May 30, 2014. Kessler (Ex. 1006) at (43), (54). Kessler was filed on September 13, 2013 and claims priority to a foreign application filed November 23, 2012. Kessler (Ex. 1006) at (22), (30).

129. Kessler disclosed another handheld game pad controller designed to hold and communicate with a computing device, such as a smart phone or tablet, and provide physical gaming controls for use with those devices. Kessler (Ex. 1006) at ¶ 1. It taught separate left and right handle housings that provided user input controls such as buttons, d-pads, or joysticks. Kessler (Ex. 1006) at ¶¶ 11–12, 73–74. The handle controllers were interconnected via an adjustable bridge, and together held a smart device in place on two sides. Kessler (Ex. 1006) at 20–21, 23–25, 30–32, 36–38, 83–91, 99–101. Figures 10 and 11 below show the game controller without and with a handheld computer, as the device was designed to be used.



130. Kessler further described that the adjustable bridge could be comprised of a telescoping slide mechanism and could be biased so as to resist movement of the handles away from each other, thereby providing a gripping force for holding a smart phone or other device between the opposing end faces of the handle housings. Kessler (Ex. 1006) at ¶¶ 25, 30, 31. Part of this biasing mechanism included coil springs provided by the handles and attached between the handles and the telescoping slide mechanism. Kessler (Ex. 1006) at ¶ 99.

131. Further, each handle had control circuitry connected via an electrical connection means that passed through the extension mechanism (bridge). Kessler (Ex. 1006) at ¶¶ 26–27. Each of the handles of the controller could have a memory, a processor, and a communication module (which could be wireless or wired) capable of communicating with the smart device. Kessler (Ex. 1006) at ¶¶ 11–12, 19.

E. Hirschman

132. Hirschman is titled “MULTI-CONFIGURATION COMPUTER,” and was published on October 25, 2012. Hirschman claims priority to a provisional application filed April 20, 2011. Hirschman disclosed a portable tablet computer with communication ports that interface with peripheral gaming controller devices on its sides. Hirschman (Ex. 1007) at ¶ 52. As shown in Figure 5 below, game accessory devices (controllers) attached by insertion of retention posts 162 into retention slots 122 of retention structures 260, using two opposed spring-loaded plungers, for instance. Hirschman (Ex. 1007) at ¶¶ 61–64. Each controller has input apertures and input devices, such as a joystick, d-pad, and buttons. Hirschman (Ex. 1007) at ¶¶ 11, 67, 83.

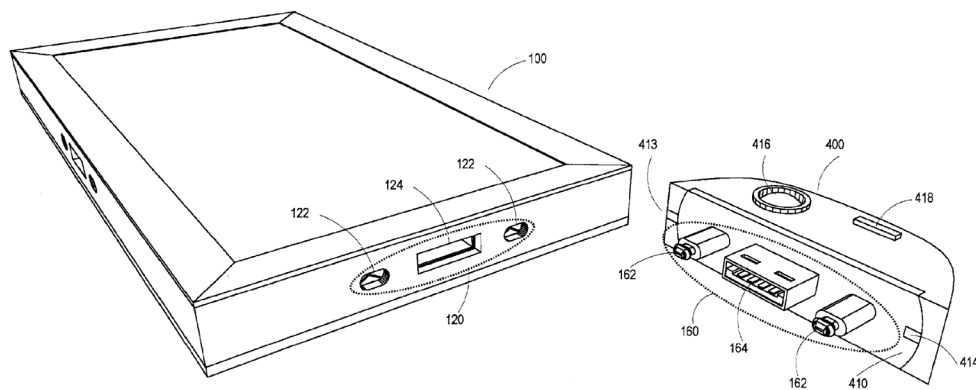


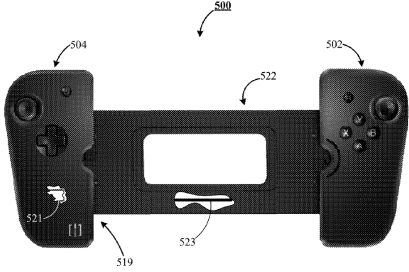
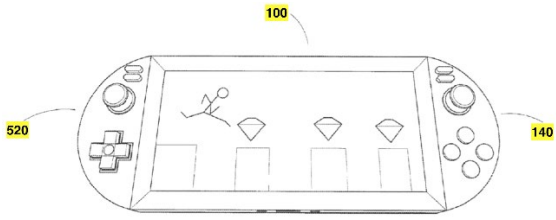
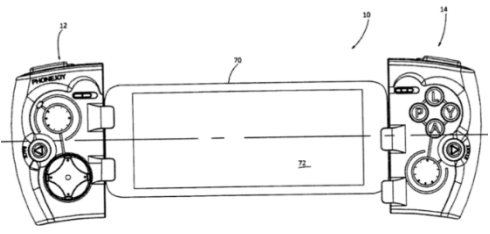
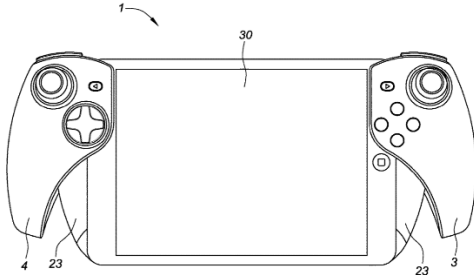
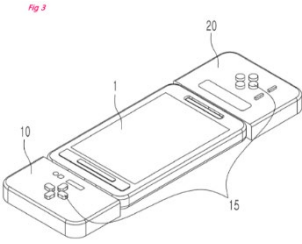
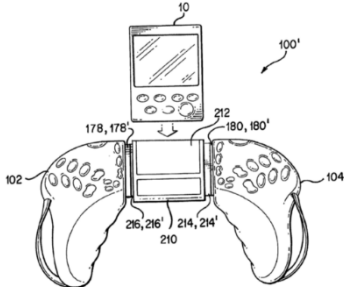
FIG. 5

IX. MOTIVATION TO COMBINE

133. In determining obviousness, I have considered whether the teachings to be combined fall within the same field; in other words, are they similar devices, are they addressing the same problem or market need, and would they benefit from the same improvements or innovations?

134. With regard to the references I have considered in this analysis, they taught devices that fall within the same category – *associated controller accessories for separate handheld computing devices*. An even more specific subcategory would be *associated controller accessories for separate handheld gaming computing devices*. While the disclosures may mention ancillary usages, all of the devices address the handheld gaming market.

135. A visual review of these devices in question supports this categorization:

U.S. Patent No. 9,391,393 <i>“Game Controller with Structural Bridge”</i>  The diagram shows a top-down view of a game controller. It features two grips, 504 on the left and 502 on the right, connected by a central bridge 500. The left grip has a directional pad 521 and a trigger 519. The right grip has two analog sticks 522 and 523. A central touchpad 524 is located on the bridge.	Hirschman, U.S. Patent Application No. US 2012/0271967 A1 <i>“Multi-Configuration Computer”</i>  The diagram shows a handheld device 100 with a central screen 102. On the left side, there is a directional pad 520. On the right side, there are several buttons 140. The device has a rounded, ergonomic shape.
Kessler, International Patent Application No. WO 2014/079264 A1 <i>“A Handheld Apparatus for Communicating Control Signals to an Information Processing Device”</i>  The diagram shows a handheld apparatus 30 with two grips 32 and 34. The left grip 32 has a directional pad and several buttons. The right grip 34 has a joystick and several buttons. The central part of the device is a flat, rectangular area 36.	Schoenith, U.S. Patent No. 9,539,507 B2 <i>“Apparatus and Method for Controller Accessory”</i>  The diagram shows a controller accessory 1. It has a central screen 30. On the left side, there is a directional pad 4 and a joystick 23. On the right side, there is a joystick 23 and a button 3. The device has a rounded, ergonomic shape.
Park, Korean Patent No. 10-2011-0116892 <i>“Game pad device for mobile phone”</i>  The diagram shows a game pad device 10 for a mobile phone 20. The device 10 has a central screen 15 and several buttons 10. It is designed to be attached to the back of a mobile phone.	Willner, U.S. Patent App. US2001/0045938 A1 <i>“Hand grippable combined keyboard and game controller system”</i>  The diagram shows a hand grippable combined keyboard and game controller system 100'. It has two grips 102 and 104. The left grip 102 has a directional pad 178, 178' and several buttons 212, 214, 214'. The right grip 104 has a joystick 180, 180' and several buttons 212, 214, 214'. The central part of the device is a flat, rectangular area 210.

136. As discussed above, in the late 2000s, Apple and others released mobile touchscreen computing devices that gave rise to a market for mobile gaming and mobile gaming controller accessories. The references mentioned above addressed this market need in similar ways:

- They all offered traditional, video game console-style game controllers for smart phones and portable computers, having joysticks, d-pads and buttons.
- They all positioned the game controllers to either side of a display.
- From a user interface standpoint, the industrial design is similar, allowing the player to hold the device in the manner of a Nintendo, Xbox, or PlayStation controller.
- They all offer an integrated external controller which secures a mobile computing device while stabilizing the game controllers.

137. Given the substantial overlap in the teachings among the references, a POSITA would have recognized that an innovation or improvement taught in one of them would likely apply to and improve others.

138. For example, the adjustable bridge of Park or Kessler would have improved the devices Willner and Schoenith disclose. Willner and Schoenith each disclose a device designed to accept a fixed-width mobile device in a cradle or frame of the controller (though Schoenith notes that different sized cradles could be used to accommodate different sized devices). It would have been an improvement to add an adjustable bridge to allow the device to be compatible with many more devices of different sizes, due to its ability to adjust to a specific device width. Making this modification would have been of great commercial value because it would have expanded the number and variety of compatible mobile devices for use with the gaming controllers of Willner or Schoenith. Such an improvement would also have enabled that accommodation without the need to provide multiple cradles or adaptors for each differently-sized mobile device, thereby reducing the number of products a gaming controller designer had to produce/manufacture and the number of gaming controller accessories a consumer had to purchase. Both Kessler and Park taught just such an improvement. A POSITA would have been motivated to add Park's adjustable bridge to Willner's device or Schoenith's device, and to add Kessler's bridge to Schoenith's device to obtain the benefits described above.

139. The explosive, and unanticipated, growth of the iPhone and mobile devices in general, created a market need for gaming controllers that could operate

together with a greater selection of mobile devices. A POSITA would have been motivated to address this recognized market need by applying known techniques from Park and Kessler to known devices in the same market segment. The resulting modified device would have yielded the predictable result of an adjustable bridge between gaming controllers that accommodated a wide range of mobile devices.

X. UNPATENTABILITY OF THE CHALLENGED CLAIMS

140. The following table shows the grounds for unpatentability that Nintendo is raising in the *inter partes* review petition against the '393 patent. I address each ground below.

Ground	References	Basis	Challenged Claims
1	Willner and Park	Obviousness	1–7
2	Schoenith and Park	Obviousness	1–7
3	Schoenith and Kessler	Obviousness	1–7
4	Hirschman	Anticipation and Obviousness	1–4, 6–7

A. Obviousness Based on Willner in view of Park

141. The following section provides an analysis that demonstrates how the combination of Willner and Park rendered obvious claims 1–7. As noted above in ¶¶ 129–135, a POSITA would have had several reasons to combine the teachings of Willner and Park.

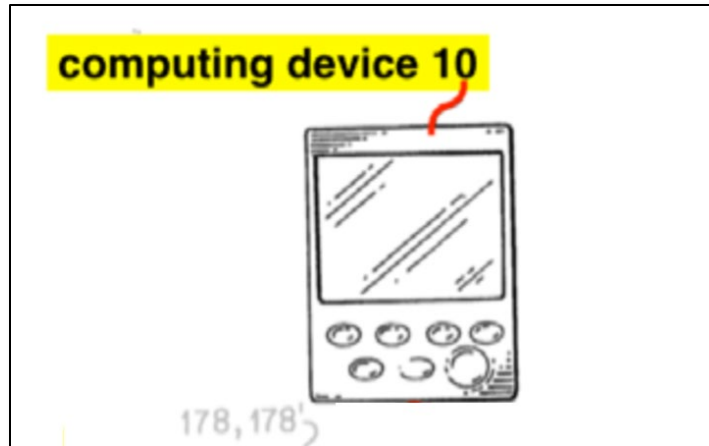
1. Claim 1:

a. Preamble: *A combination comprising:*

142. The combination of Willner and Park is a combination of components as discussed below.

b. 1[a]: *a computing device;*

143. Willner disclosed a computing device in the form of “palm/tablet sized” computing device 10, as shown below. Willner (Ex. 1003) at ¶ 50, Fig. 4. Willner further disclosed computing device 10 communicated “though a wireless data link, such as by radio frequency, utilizing the ‘blue tooth’ standard,” and it taught that “gaming signals” from housings 102 and 104 would be sent to computing device 10, whether through wireless or wired connections, including “to provide directional inputs to a game” or “to control the firing of weapons and/or provide control of particular maneuvers of the game icons, such as jumping, flying, and the like.” Willner (Ex. 1003) at ¶¶ 40, 48–50. Park likewise disclosed computing devices in the form of “touchscreen type mobile phones for gaming.” Park (Ex. 1004) at ¶¶ 1–3, Fig. 4.



Willner Fig. 4 (closeup and annotated)

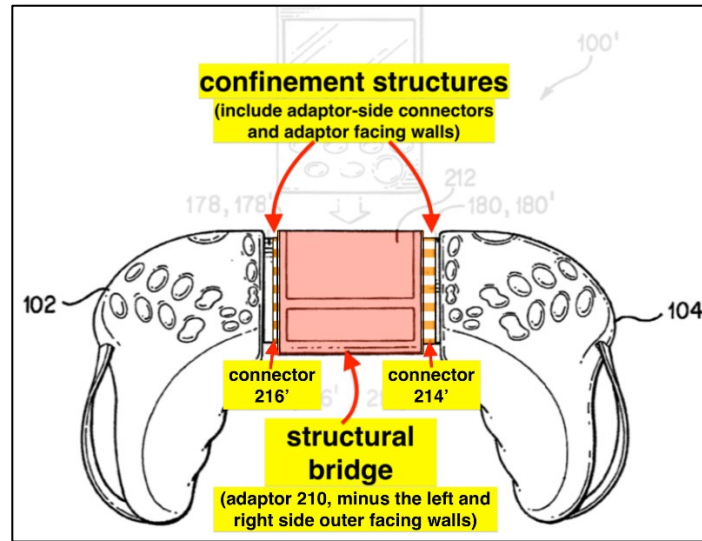
144. A POSITA would have understood in view of these disclosures that the computing devices of Willner and Park included a central processing unit (CPU) and electronic equipment under the control of that CPU, such as a screen, memory, and communications modules (*e.g.*, Bluetooth module).

145. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

- c. 1[b][1]: *a pair of confinement structures, the pair of confinement structures interacting with the computing device and adjacent at least two opposing sides of the computing device, but not more than three sides of the sides of the computing device,*

146. Willner disclosed confinement structures, which are comprised of the left- and right-side facing walls of the adaptor 210, and the connectors that are attached to such facing walls. Willner (Ex. 1003) at Fig. 4, ¶ 50. Figure 4 below shows the confinement structures, highlighted with dotted lines, as well as the

structural bridge, in the form of adaptor 210, with the exception of the left- and right-side facing walls.



Willner Fig. 4 (modified for clarity, and annotated)

147. The confinement structures also included connectors 214' and 216' on the left and right sides, which mate with compatible connectors on the Willner's left and right housings 102 and 104.

148. The composition of the confinement structures is more easily understood given the perspective drawing shown below:

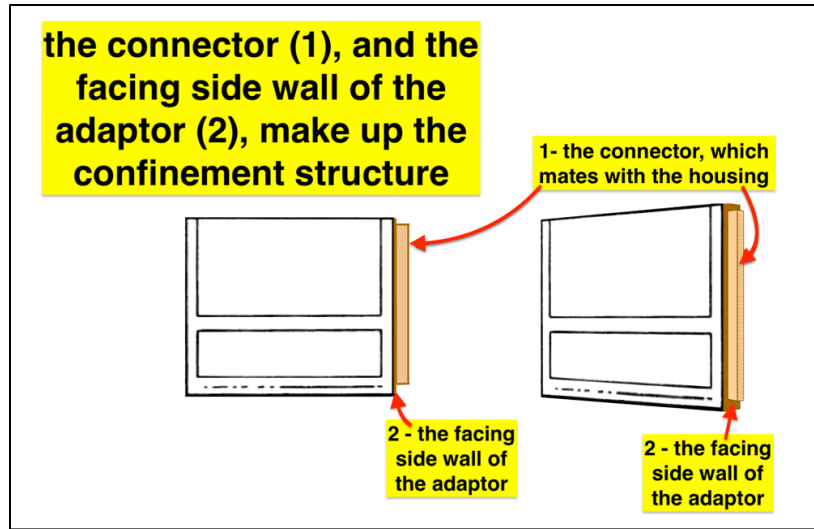


Image showing the Willner confinement structures with original imagery based on Willner Fig. 4 (modified and annotated for clarity)

149. Park disclosed an adjustable, structural bridge. Park (Ex. 1004) at Fig. 4, ¶¶ 8, 14, 32–33.

150. As described above in ¶¶ 133–139, a POSITA would have been motivated to combine Park’s teaching of an adjustable structural bridge with Willner’s device, which includes confinement structures.

151. A POSITA would have recognized significant advantages to combining the teachings of Willner with Park. Before the date of the alleged invention, there were dozens of mobile devices available from manufacturers such as Apple, Google, Samsung, and LG, among others, running on either Google’s Android or Apple’s iOS operating systems. There is not, and was not at the time, a standard size for the height or width of a mobile device. For example, Apple alone

(one manufacturer out of dozens in the market), had at least nine mobile products actively being used by 2012, representing six different heights:^{16, 17, 18}

Model	Release date	Height
iPhone 3GS	2009	4.5 in.
iPhone 4	2010	4.5 in.
iPhone 4s	2011	4.5 in.
iPhone 5	2012	4.87 in.
iPad 1	2010	9.55 in.
iPad 2	2011	9.49 in.
iPad 3	2012	9.49 in.
iPad mini	2012	7.87 in.
iPad 4 mini	2012	8.00 in.

152. Because of this large variety of sizes, Park's adjustable bridge would have been a clear enhancement to Willner's controller accessory. A POSITA would have recognized that the feature would have greatly expanded the number of devices that Willner's product would support while reducing the need to use

¹⁶ *All Apple iPad versions compared*, SOCIALCOMPARE.COM (last updated June 13, 2020), <http://socialcompare.com/en/comparison/apple-ipad-versions-compared-ipad-air-vs-ipad-mini> (last visited Feb. 20, 2023).

¹⁷ Todd Haselton, *Here's every iPhone released, in order, and what changed along the way*, CNBC.COM (Jun. 29, 2017), <https://www.cnbc.com/2017/06/29/every-iphone-released-in-order.html> (last visited Feb. 20, 2023).

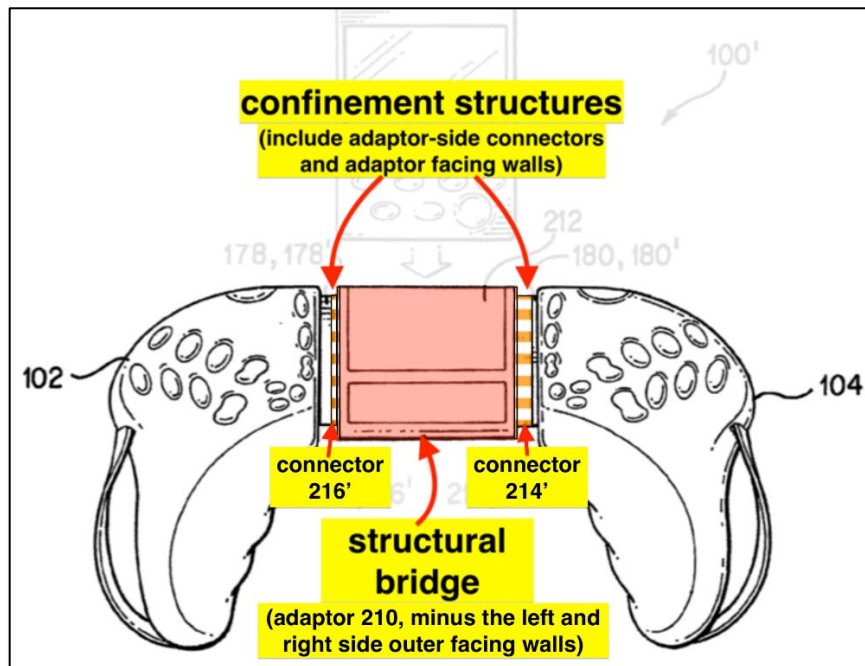
¹⁸ *List of iPads*, THEIPHONEWIKI.COM (last updated Sept. 21, 2021), https://www.theiphonewiki.com/wiki/List_of_iPads (last visited Feb. 20, 2023).

multiple cradles, leading to the predictable result of having a larger base of potential customers.

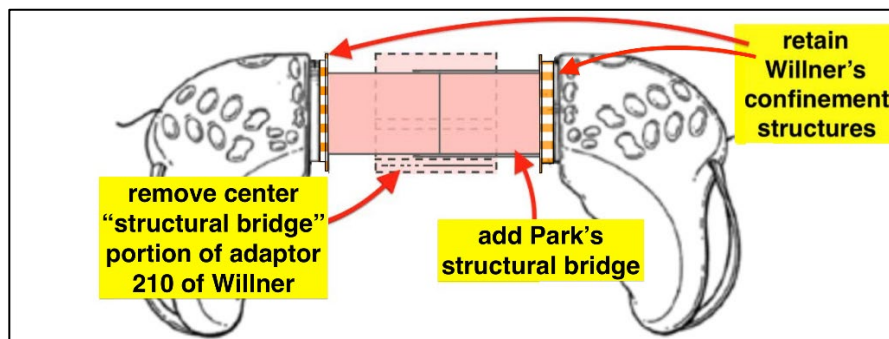
153. As noted above in ¶¶ 134-135, the products Willner and Park disclose fall within the same category of products – *associated controller accessories for handheld gaming computing devices*. For this reason, a POSITA would have been motivated to apply the teachings of Park to Willner as it is an example of improving a similar device. Also, as discussed in ¶¶ 136–139 above, Willner and Park were both addressing the same general market need. Therefore, a POSITA would have been motivated to combine Park and Willner because they would be applying a known technique (the adjustable bridge) to a known device (in the same market segment) to yield a predictable result (a device compatible with differently sized mobile devices).

154. From an engineering standpoint, a POSITA would have recognized that removing a portion of adaptor 210 from Willner and replacing it with the adjustable structural bridge of Park, while retaining Willner’s containment structures and housings, would have led to an improved game control device. Given the technical similarity of the devices, this modification would have been low risk, yielding the predictable result of adding an adjustable width docking compartment. Retaining the confinement structures (side walls) would have been important to stabilize the right and left sides of a computing device once the

structural bridge is adjusted to adapt to the size of the device. The side walls function to secure the sides of the computing device and hold it in place, and they provide connectors to join the housings and computing device. The top illustration below shows Willner's disclosure, and the bottom illustration shows one possible way to combine Willner and Park:

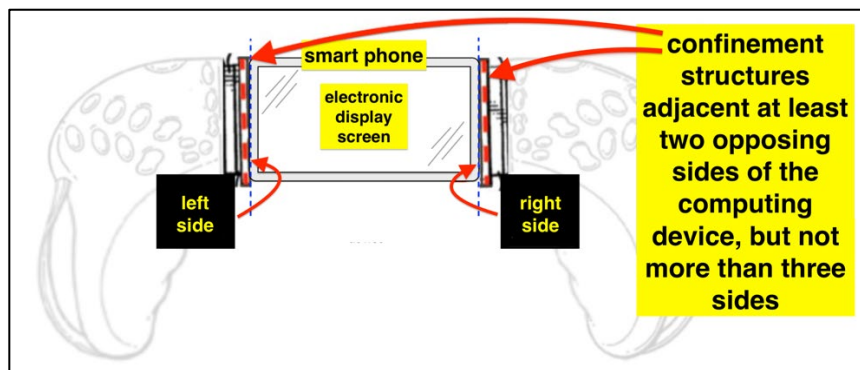


Willner Fig. 4 (modified for clarity, and annotated)



Possible modification of Willner to incorporate teachings of Park

155. The image below shows the combination of Willner with Park, holding a generic smart phone.



One possible modification of Willner to incorporate teachings of Park holding generic smart phone

156. In the combination, Park’s bridge would be adjusted to reduce the length of the bridge and thereby “mount” a computing device by having Willner’s side walls (confinement structures) “apply pressure” to opposing sides of the computing device. Park (Ex. 1004) at ¶¶ 38–41. Thus, the Willner side walls are adjacent¹⁹ to two opposing sides of the computing device (but not more than three sides of the computing device).

157. Additionally, the left and right side walls “interact” with the computing device. For example, when a computing device is mounted on the combined device, the side walls make physical contact with two opposing sides of

¹⁹ I have applied the construction for *adjacent* that I understand the parties agreed to in the Northern District of California case: “nearby but not necessarily next to.” Ex. 1028 at 5 n.2.

the computing device, as explained above, and thus physically interact with the computing device. Additionally, as I explain below with respect to limitation 1[b][2][a], [b], the left and right side walls contain “communication links” (connectors 214’ and 216’) which receive and transfer data from the Willner housings 102 and 104 and transfer that data to the computing device through connector 226, electrically interacting with the computing device. Willner (Ex. 1003) ¶51.

158. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

d. 1[b][2][a]: *each of the pair of confinement structures comprising a communication link,*

159. The combination of Willner and Park described above includes the side walls of adaptor 210, including connectors 214’ and 216’, as confinement structures. Willner (Ex. 1003) at ¶ 51.

160. Willner disclosed connectors on the confinement structures that comprise communication links. Willner disclosed that connectors 214’ and 216’ receive the keystroke signals from each of the left and right housings 102 and 104. Willner (Ex. 1003) at Fig. 8, ¶ 51. The signals received by the confinement structure communication links were transferred to a docking connector 226 within the adaptor 210, which mated with the computing device 10: “Adaptor 210 is provided with complementary connectors 214’ and 216’ **for receiving the**

keystroke signals from each hand grippable unit and **transferring such to a docking connector** within the adaptor 210 which **mates with a corresponding connector of the computing device 10.**” Willner (Ex. 1003) at ¶ 51 (emphasis added). A POSITA would therefore have understood that connectors 214’ and 216’ were a communication link as recited (“a component for the reception and transmission of data”).

161. A POSITA would have been motivated to combine Park’s teaching of an adjustable structural bridge with Willner’s device, which explicitly discloses confinement structures with connectors. In combining Park’s adjustable structural bridge while maintaining Willner’s confinement structures, a POSITA would have been motivated to maintain connectors 214’ and 216’ of Willner.

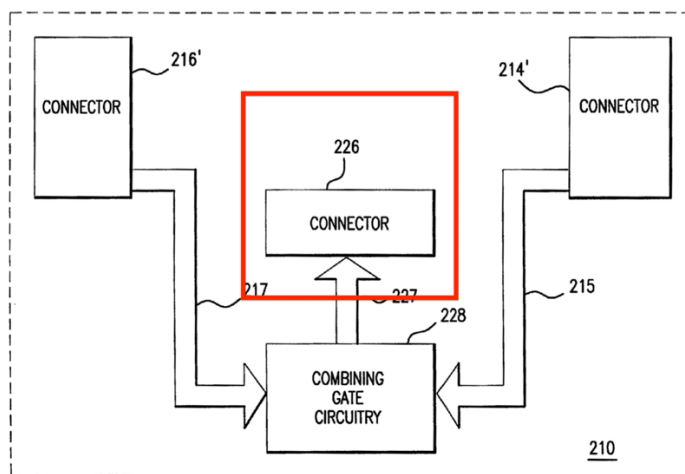
162. Therefore, in the combination of Willner and Park, each of the adaptor side walls, in combination with connectors 214’ and 216’, rendered obvious “each of the pair of confinement structures comprising a communication link.”

- e. 1[b][2][b]: *each of the communication links configured for electronic communication with the computing device;*

163. The communication links of the confinement structures, in the form of connectors 214’ and 216’, are configured for “electronic communication” with the computing device 10. As discussed above, Willner disclosed that connectors 214’ and 216’ were part of adaptor 210, and that the signals received by connectors 214’ and 216’ were transferred to a docking connector 226 within the adaptor 210,

which mated with the computing device 10, as shown in annotated Figure 8 below.

Willner (Ex. 1003) at ¶ 51 (emphasis added).



Willner Fig. 8, showing adapter docking port 226 (annotated)

164. Willner thus disclosed that connectors 214' and 216' were in communication with computing device 10 through docking connector 226.

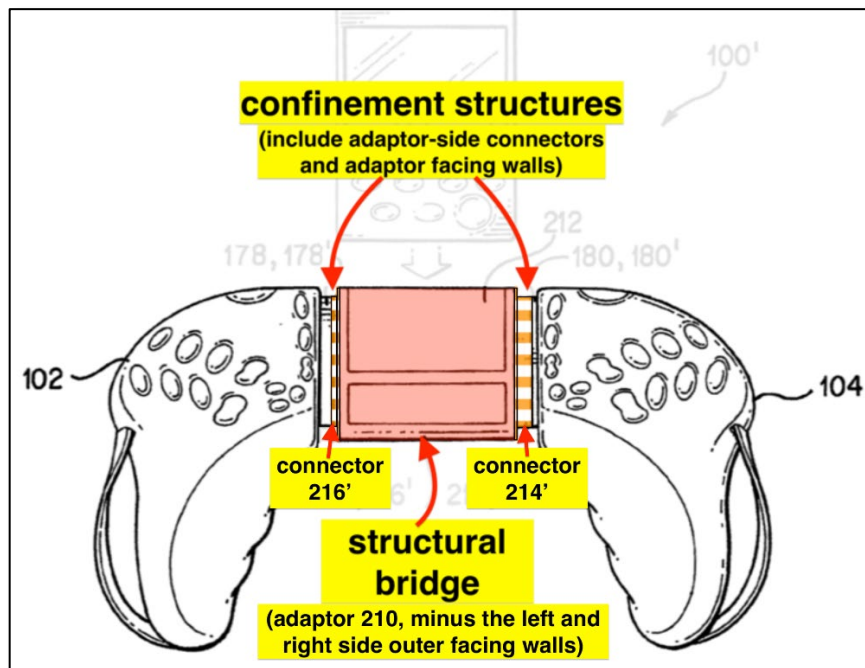
165. Additionally, because Willner disclosed that connectors 214' and 216' receive **and** transfer data from the housings 102 and 104 to computing device 10 through device connector 226, a POSITA would have understood that—to have performed the functions of reception **and** transfer of data, as opposed to mere passage of data over a cable—connectors 214' and 216' would have included associated circuitry, and therefore the connectors would have “mediated” the “flow of information” “through an electron device, such as ... [a] semiconductor.”

Ex. 1018 at 18.

166. Willner further disclosed a switch 218 that is included in adaptor 210, and “provid[ed] an enabling signal to gate circuitry 230 responsive to coupling of

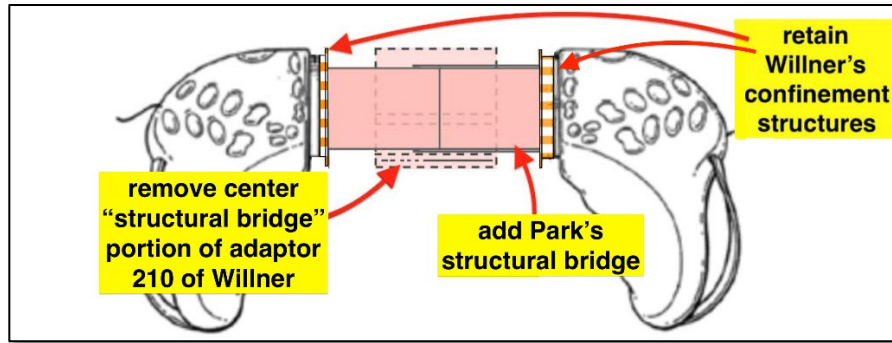
the adaptor 210 to respective housing 102, 104” Willner (Ex. 1003) at ¶ 52.

Willner taught that this enabling signal causes gate circuitry 230 in respective housing 102, 104 to “disable” output interface circuit 224, which thereby caused “keyboard signals” to be sent over bus 222 to gate circuitry 230, and then from gate circuitry 230 to adaptor 210, through connectors 178’, 180’ to connectors 214’, 216’, as shown in Figure 6. Willner (Ex. 1003) at Fig. 6, ¶¶ 45, 46, 52.



Willner Fig. 4 (modified for clarity, and annotated)

167. In the proposed combination of Willner and Park, as shown below, the width of the adapter is replaced by Park’s adjustable structural bridge, retaining only Willner’s containment structures (adaptor side walls) and housings.



Possible modification of Willner to incorporate teachings of Park

168. While adapter 210 was disclosed by Willner as a location of switch 218, a POSITA would have recognized that in combining Willner's confinement structures with Park's adjustable structural bridge, locating the switch (or other electronics) in the adjustable bridge would not have been preferred, given the mechanical nature of Park's telescoping slide mechanism.

169. In the original configuration of Willner (as shown below), the industrial design of the adaptor 210, the width of which was generally defined by the width of the computing device, allowed for common area between the housings 102 and 104, where circuitry associated with adaptor 210 could be located, such as combining gate circuitry 228 and switch 218.

170. In the combination, however, the central portion of the adaptor 210 was replaced with Park's adjustable structural bridge. As a result, a POSITA would have recognized that the appropriate place for switch 218 in the combination was in the confinement structures, *i.e.*, in the side walls and connected to the connectors 214' and 216'. This would give switch 218 easy access to provide an enabling

signal to “gate circuitry 230 responsive to coupling of the adaptor 210 to respective housing 102, 104 housing connectors.” Willner (Ex. 1003) at ¶ 52. This is also consistent with Willner’s teachings that switch 218 is part of adaptor 210 because connectors 214’ and 216’ are “provided” as part of adaptor 210. Willner (Ex. 1003) at ¶ 51. Thus, locating switch 218 in the connectors is placing them in adaptor 210. A POSITA would also have understood that such a “switch” is an “electron device”, would be implemented in a “semiconductor,” and would mediate the flow of information (*e.g.*, the enabling signal) by activating or deactivating an electrical pathway or circuit.

171. As to device connector 226, in retaining the side walls of the adaptor in the combination of Willner and Park, one or both side walls would include such a device connector (*e.g.*, on the interior face of the side wall) to allow wired communication between the connectors 214’ and 216’ (in the side walls) and the computing device 10. Willner (Ex. 1005) at ¶ 51, Fig. 8. If only one side wall includes a device connector, signals are received from the attached housing and transferred by that side wall’s connector to the device connector, which in turn sends the data to the computing device 10. In addition, signals from the housing on the opposing side of the device (the one without a device connector) would be received by the adjoining connector in that side wall and transferred by the connector to the bridge, and through a cable in Park’s bridge (as described below

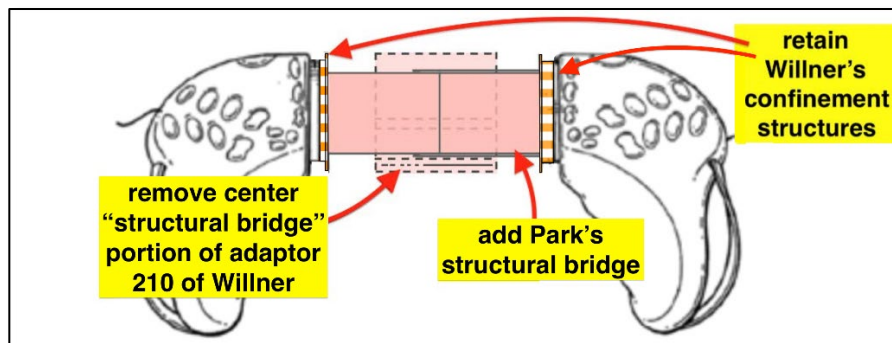
in ¶¶ 177–178 regarding limitation 1[c][2][a]), into the opposite side wall for transmission through the device connector to the computing device 10. In this configuration, both the side wall connectors (communication links) are used when the housings communicate with the computing device 10. The specification describes a similar configuration where an “interface feature 338” is provided as part of a confinement structure and allows wired communication with a computing device. ’393 patent (Ex. 1001) at 10:21–34, Figs. 18–19. Alternatively, incorporating connectors to the computing device in both side walls provides several potential benefits, including allowing a wider range of computing devices to be connected if different “standard” interfaces were used (such as Apple Lightning® and Micro-USB connectors), redundancy in case of failure of one of the wired connectors, and greater ease of use by allowing the device to connect regardless of its orientation. If two connectors are used, each would be retractable or have a low profile so that the connector not being used would be protected from contact with the computing device.

172. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

f. 1[c][1]: *a rigid structural bridge disposed between and secured to the pair of confinement structures,*

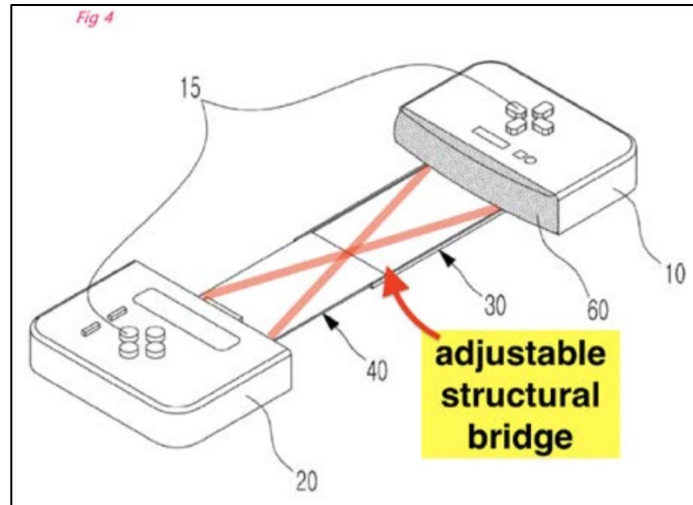
173. The combination of Willner and Park rendered this claim obvious. As discussed above in ¶¶ 146–154 regarding limitation 1[b][1], a POSITA would have

been motivated to combine Park’s teaching of an adjustable structural bridge with Willner’s device, and in doing so would have maintained Willner’s side walls, including connectors 214’ and 216’, as confinement structures. In this arrangement, the structural bridge would be between the confinement structures and would be attached to (secured to) the confinement structures. Park (Ex. 1004) at Abstract, ¶¶ 8, 13, 26, 32, 40. As such, the structural bridge would be a physical apparatus that secures the confinement structures to each other across a distance.



Possible modification of Willner to incorporate teachings of Park

174. Additionally, Park’s bridge is a rigid structure. Park disclosed a bridge that secures first body 10 and second body 20 one to the other, as shown below. Park (Ex. 1004) at Abstract (disclosing “a bridge that connects that first body and the second body and whose length is adjustable, and is characterized in that ... the first body and the second body respectively [are] in contact with either side of the mobile phone”). Park taught that its bridge comprises two sliding portions connected via a series of recessed catching holes and protrusions. Park (Ex. 1004) at ¶¶ 9, 14, 33.



Park Fig. 4 (annotated)

175. Based on its teachings, Park’s bridge is a rigid structure in order to properly accomplish its functions. Those functions include supporting a mobile phone by providing rigidity so the phone can be “seated” or “mounted” on top of the adjustable structural bridge. Park (Ex. 1004) at ¶¶ 8, 13, 30, 40. The bridge also provides a stable and rigid mechanical connection between first body 10 and second body 20. Park (Ex. 1004) at Abstract, ¶¶ 8, 13, 26, 32, 40. The bridge must also support a connecting cable that runs within it. Park (Ex. 1004) at ¶¶ 26, 36. It was also known in the prior art that a rigid bridge provided “secure accommodation” of a computing device. Schoenith (Ex. 1005) at 8:43–60 (describing Schoenith’s rigid cradle).

176. Therefore, the combination of Willner and Park rendered obvious a rigid structural bridge disposed between and secured to the pair of confinement structures.

- g. 1[c][2][a]: *the rigid structural bridge comprising a passageway between the pair of confinement structures,*

177. As described above in ¶¶ 146–154, the combination of Willner and Park would have included Park’s adjustable bridge. Park disclosed an adjustable-length structural bridge which connected the first body and second body (control modules) electrically. Park (Ex. 1004) at ¶ 40 (“**The bridge (30, 40)** whose length can be adjusted and fixed using the above-described method, mechanically and **electrically connects the first body (10) to the second body (20)**” (emphasis added)). Park further disclosed that the control modules, in the form of a first body and second body “equipped with key buttons,” are “**electrically connected by a connecting cable.**” Park (Ex. 1004) at claim 1 (“A game pad device for a mobile phone, comprising: ... a bridge that connects the first body and the second body and whose length is adjustable, and which is characterized in that: **the first body and the second body are electrically connected by a connecting cable**” (emphasis added)).

178. Park also disclosed that the connecting cable runs inside a certain portion or passageway within the bridge and “provides the basis for a combined signal to be entered into a mobile phone (1)” (the computing device). Park (Ex. 1004) at ¶ 36 (“**A connecting cable for electrically connecting the first body and second body (10, 20) electrically joins the first body and second body (10, 20)** which are separated from each other and **provides the basis for a combined**

signal to be entered into a mobile phone (1) through a connecting terminal (21). It is connected to the first body (10) and extends along a certain portion of the inside of the bridge (30, 40), connecting to the second body (20)." (emphasis added)); Park (Ex. 1004) at Abstract, ¶¶ 8, 30. A POSITA would have understood that a communication wire being run through a mechanically-active environment, such as the inside of a sliding, retracting and expanding bridge, would necessarily be run through a conduit to physically protect the integrity of the wire.

179. I also note that the Board previously determined that the combination of Willner and Park rendered obvious a “structural bridge comprising: a conduit between the pair of control modules.” Final Written Decision, IPR2018-01522 (Ex. 1011) at 19–20.

180. Therefore, the combination of Willner and Park rendered obvious a rigid structural bridge comprising a passageway (“a space that accommodates a communication wire”) between the pair of confinement structures.

- h.** 1[c][2][b]: *the passageway promotes electrical communication between the communication link of a first confinement structure of the pair of confinement structures and the computing device, the passageway further promotes electrical communication between the communication link of a second confinement structure of the pair of confinement structures and the computing device; and*

181. As discussed above in ¶¶ 146–172 regarding limitations 1[b][1] and 1[b][2], the combination of Willner and Park rendered obvious “each of the pair of

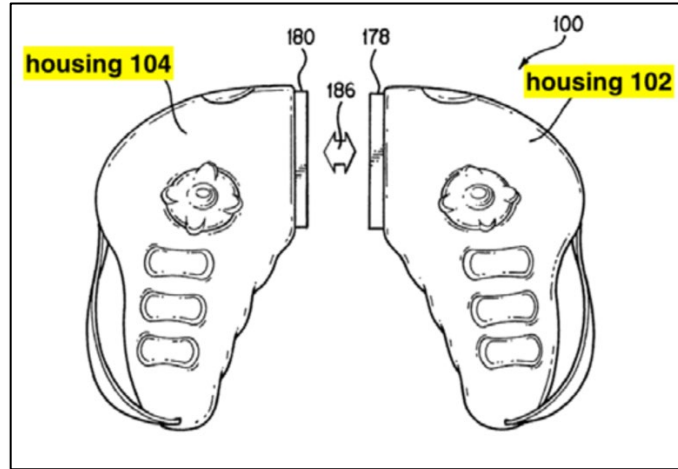
confinement structures comprising communication links” configured for communication with the computing device. And as discussed above in ¶¶ 177–180 regarding limitation 1[c][2][a], the combination of Willner and Park rendered obvious “rigid structural bridge comprising a passageway between the pair of confinement structures,” including because Park’s adjustable bridge contains a “certain space” that accommodates a communication wire.

182. Additionally, a POSITA would have understood that the combination’s conduit (passageway) protects the communication wire and thus the electrical connection between the game controllers (right and left side housings) and between the controllers and the computing device 10. As such, the passageway “promotes” electrical communication (“the flow of information between two components represented by the use of electricity”) between the two controllers, between their related side walls (including connectors 214’ and 214’), and between the controllers and a computing device (at least through connector 226).

183. Therefore, the combination of Willner with Park rendered this claim limitation obvious.

i. 1[d][1]: *a pair of electronic game control modules,*

184. Willner disclosed a pair of electronic game control modules in the form of housings 102 and 104, as shown below. Willner (Ex. 1003) at ¶¶ 25–29, 32, 40, 51.



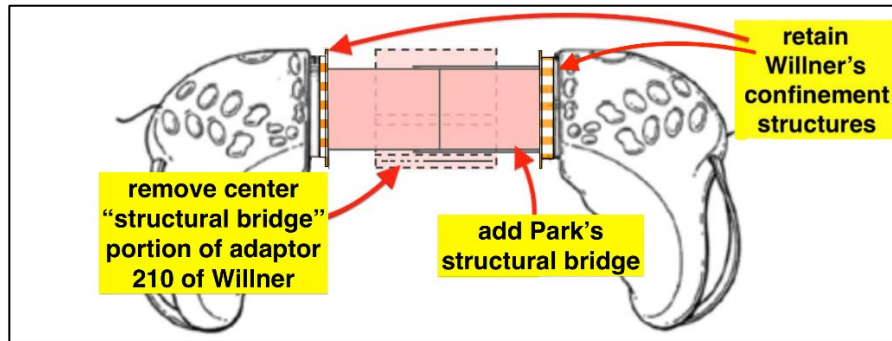
Willner Fig. 3A (annotated)

185. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

j. 1[d][2]: *each electronic game control module of the pair of electronic game control modules is secured to and interacts with a corresponding confinement structure of the pair of confinement structures,*

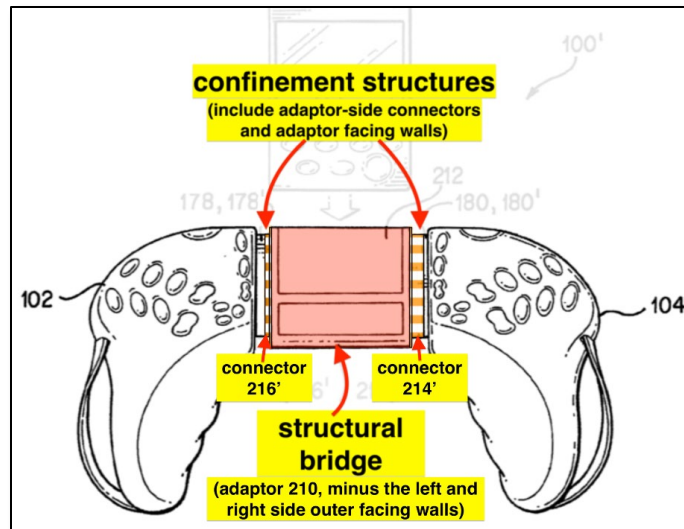
186. As discussed above in ¶¶ 145–162 and ¶¶ 184–185 regarding limitations 1[b][1], 1[b][2], and 1[d][1], the combination of Willner and Park included electronic game control modules, Willner’s right and left housings 102 and 104, and corresponding confinement structures in the form of side walls of

Willner's adaptor 210, including connectors 214' and 216'. These structures are shown in the figure below.



Possible modification of Willner to incorporate teachings of Park

187. Additionally, Willner disclosed that the connectors of its confinement structures “mingly engage” with “complementary connectors” on the left and right electronic game modules (handle housings 102, 104). Willner (Ex. 1003) at ¶¶ 50, 51; Willner (Ex. 1003) at ¶ 46 (“The tight fit between the first connecting portion 178 and the second connecting portion 180 provides a releasable coupling between housings 102 and 104 that permits the housings to be **integrally joined**” (emphasis added)).



Willner Fig. 4 (modified for clarity, and annotated)

188. Further, in combining Park’s adjustable structural bridge while maintaining Willner’s confinement structures, the connection between the electronic game control modules and the confinement structures, through the connectors 214’ and 216’ of Willner, would have also been maintained. For example, the connectors are an integral part of Willner’s confinement structures and allow communication of signals from the game control modules to the computing device 10. Willner (Ex. 1003) at ¶ 51 (“**Adaptor 210 is provided with complementary connectors 214’ and 216’ for receiving the keystroke signals from each of the hand grippable unit and transferring such** to a docking connector within the adaptor 210 which mates with a corresponding connector of the computing device 10. ... Similarly, signals are transferred from the connector 214’ to the combining gate circuitry 228 through bus 215. Combining gate circuitry 228 transfers the character, function, and symbol codes generated by each

of the hand grippable units to the bus 227 which provides those code to computing device docking connector 226, for input to computing device 10.” (emphasis added)); Willner (Ex. 1003) at ¶ 46 (“The connecting portions may be provided in an alternate configuration 178’, 180’, **wherein an electrical connection may also be made** therebetween when the connecting portions 178’, 180’ are telescopically engaged.”).

189. As a result, in the combination, the electronic game control modules (right and left housings 102, 104) would be attached to the connector of the corresponding confinement structure (connectors 214’ and 216’), and thus secured to the corresponding confinement structure.

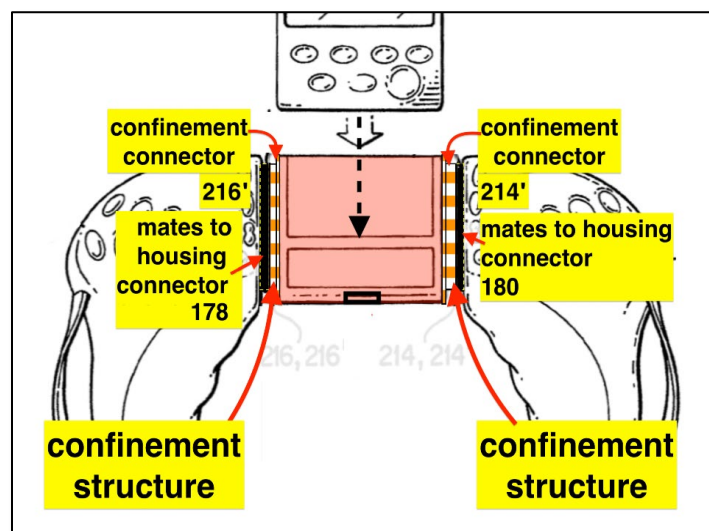
190. The modules and confinement structures would also interact with each other. For example, the modules would physically interact with their corresponding confinement structures when Park’s structural bridge is adjusted to “mount” a computing device. In that circumstance, the bridge is locked in a position that provides a compressive force to the phone, and as a result the phone supplies resistance in the opposite direction. The resistance is transmitted, at least in part, through the confinement structures, including connectors, to the electronic game control modules. As another example, the modules and corresponding confinement structures would physically interact when connectors 178’ and 180’ are “matingly engaged” with connectors 214’ and 216’, as described above at ¶ 187.

191. The modules also electrically interact with their corresponding confinement structure by sending “keystroke signals” to the connectors of the corresponding confinement structures, which connectors then transfer those signals to the computing device through the “combining gate circuitry,” as described above at ¶¶ 163–172, 187–188. Willner (Ex. 1003) at ¶ 51.

192. Therefore, the combination of Willner with Park rendered this claim limitation obvious.

- k. 1[d][3]: *each electronic game control module in electronic communication with the communication link of its corresponding confinement structure,*

193. The combination of Willner and Park rendered this claim limitation obvious. As discussed above in ¶¶ 146–162, Willner disclosed confinement structures, comprised of the side walls of adaptor 210, each of which comprises a communication link in the form of connectors 214’ and 216’.



Willner Fig. 4 (closeup, modified for clarity and annotated)

194. The confinement structures' connectors 214' and 216' receive the keystroke signals from each of the left and right housings 102 and 104 (electronic game control modules) through the housing connectors 178 and 180: "Adaptor 210 is provided with **connecting portions 214 and 216** which respectively matingly **engage with connecting portions 180, 180' of housing 104 and 178, 178' of housing 102... a hard wire connection can be provided through the use of connectors.**" Willner (Ex. 1003) at ¶ 50 (emphasis added). More specifically, "Adaptor 210 is provided with **complementary connectors 214' and 216' for receiving the keystroke signals from each hand grippable unit and transferring such** to a docking connector within adaptor 210 which mates with a corresponding connector of the computing device 10." Willner (Ex. 1004) at ¶ 51. Willner thus disclosed that each game control module is in communication with the communication link of its corresponding confinement structure.

195. Willner also disclosed that "where the connectors 178', 180' are utilized, the digital bus 222 is coupled through gate circuitry 230 to the appropriate connector 178', 180'." Willner (Ex. 1003) at ¶46. The gate circuitry 230 is provided to "disable" output interface circuit 224 when gate circuitry 230 is enabled, and thus to allow data to be sent through connectors 178', 180'. Willner (Ex. 1003) at Fig. 2, ¶¶45, 46. A POSITA would have understood gate circuitry 230 is an electron device and that it controls and/or mediates the flow of data,

specifically between the housings 102 and 104 and connectors 214' and 216' of the adaptor side walls. Thus, Willner disclosed that each game control module is in electronic communication (“the flow of information between two components represented by the use of electricity controlled by and/or mediated through an electron device, such as a vacuum, gas, transistor, or semiconductor”) with its corresponding communication link.

196. In combining Park’s adjustable structural bridge while maintaining Willner’s confinement structures, the connection between Willner’s electronic game control modules (housings 102, 104) and confinement structures through the connectors 214' and 216' would have been maintained, and as discussed in ¶¶ 186–189 with respect to limitation 1[d][2].

197. Additionally, as described above at ¶¶ 163–166, a POSITA would have understood that for the connectors 214' and 216' to receive and transfer the data from the housings, connectors 214' and 216' would have included associated circuitry, including, for example, switch 218. Willner disclosed that switch 218 was included as part of adaptor 210, as are connectors 214' and 216'. A POSITA would have been motivated to include switch 218 in each of the side walls of the combination of Willner and Park, given the design changes necessitated by the Willner and Park combination, as described above at ¶¶ 168–170. Further, as discussed above (at ¶¶ 166, 169), switch 218 (an electron device) provides “an

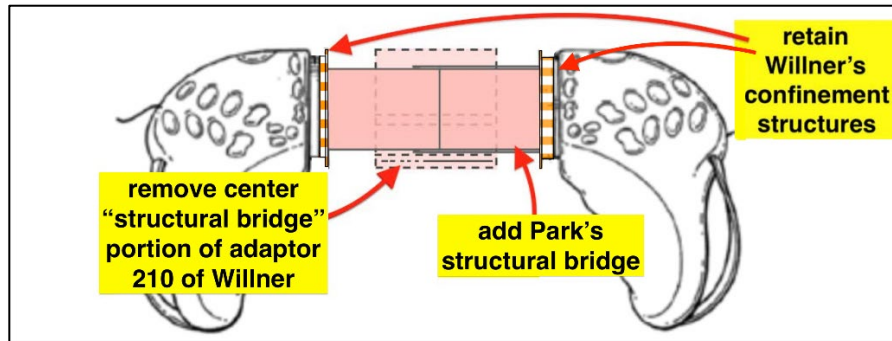
enabling signal to gate circuitry 230 [in housings 102 and 104] responsive to coupling of the adaptor 210 to respective housing 102, 104” Ex. 1003 at ¶52. This causes output interface circuit 224 to be disabled, and thus to cause “keystroke signals” to be sent through gate circuitry 230 to connectors 178’ and 180’, which then send those signals to connectors 214’ and 216’, as described above.

198. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

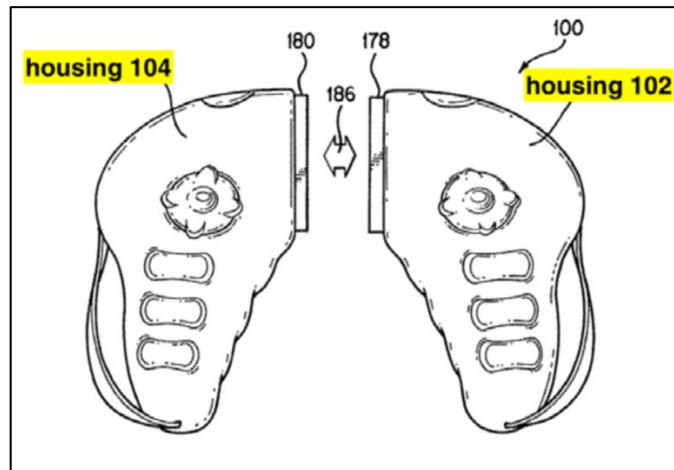
- I. 1[d][4]: *wherein each electronic game control module is a separate and distinct structure from each of their corresponding confinement structures, forming no structural portion of their corresponding confinement structures, and*

199. As discussed previously in ¶¶ 159–162, Willner disclosed side walls and the connectors 214’ and 216’ of adaptor 210, which comprise the confinement structures in the combination of Willner and Park, as shown below. Willner further disclosed electronic game control modules (left and right housings 102, 104) that can be detached from connectors 214’ and 216’. The combination of Willner and Park thus includes separate and distinct game control modules and confinement structures, as shown in the figures below. In view of the detachable connection between the game control modules and confinement structures, a POSITA would

also have understood that the game control modules form no structural portion of their corresponding confinement structures.



Possible modification of Willner to incorporate teachings of Park



Willner Fig. 3A (annotated)

200. The combination of Willner with Park rendered this claim limitation obvious.

- m. 1[d][5]: *in which each of the pair of confinement structures are separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge,*

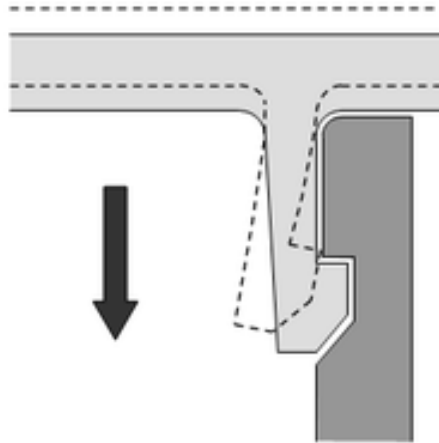
201. As explained above in ¶¶ 146–158 and ¶¶ 173–176 regarding limitations 1[b][1] and 1[c][1], a POSITA would have been motivated to combine Park’s teaching of an adjustable bridge with Willner’s device.

202. In engineering the combination as described, removing the structural bridge from the adaptor 210 would naturally result in the pair of confinement structures ending up as two separate and distinct structures. Park’s structural bridge is itself disclosed to be a separate and distinct component from the reference’s first and second game pad control bodies (housing electronics and input controls). Park (Ex. 1004) at ¶¶ 27 (“The first body (10) is connected to the bridge (30, 40) at the bottom of one side.”), 28 (“The second body (20) is also connected to the bridge (30, 40) at the bottom of one side.”), Fig. 1.

203. Incorporating Park’s bridge into Willner’s device would have resulted in a structural bridge that is separate and distinct from Willner’s confinement structures. That is consistent with Park’s teachings. In addition, whether to maintain the side walls as a separate and distinct structure would have been a known design choice (*e.g.*, unitary molding, separate components attached via detachable connectors such as snap fit connectors, etc.). A POSITA would also have been motivated to incorporate Park’s structural bridge as designed (*i.e.*, as a

separate and distinct structure) because this would have been the use of known components, as originally designed to be used, to end up with a predictable result. As Park teaches, the bridge is connected to the separate side walls at the bottom of the side walls. Thus, in the combination of Willner and Park, Willner's side walls (confinement structures) would be separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge, under Gamevice's apparent interpretation of this limitation.

204. A POSITA would further have understood that Willner's confinement structures could be firmly, but detachably connected to Park's adjustable bridge, using secure snap-fit connectors, which were available the time of the filing of the '393 patent. The image below²⁰ illustrates the operation of a snap-fit connector.



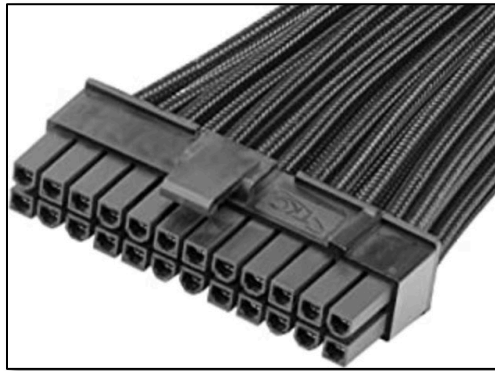
²⁰ https://commons.wikimedia.org/wiki/File:Cantilever_Snap-fit.PNG (last visited March 4, 2023).

205. Examples of the use of such snap-fit connectors are shown below.

Pictured immediately below is an adapter for a mobile computer²¹ which attaches to the device through snap-fit connectors.



206. Electronic connectors²² often use snap-fit technology for a secure yet detachable connection.



²¹ <https://www.amazon.com/Intermec-850-567-001-Adapter-Mobile-Computer/dp/B004LORDRE> (last visited March 4, 2023).

²² <https://www.amazon.com/Motherboard-Power-Extension-Cable-Female/dp/B07F38ZSJW> (last visited March 4, 2023).

207. The use of a such a connector would have provided several benefits, in addition to being a known design choice. As noted above, such connectors would have provided a secure connection and thus held the combination together and protected it from stresses encountered during normal gameplay and usage. Additionally, a detachable connection would have allowed for easier access to repair or replace components in the event of failure or malfunction. A detachable confinement structure would also have allowed the consumer to purchase adapters for different connection types, extending the useful life of the accessory product. A POSITA would therefore have been motivated to use such connectors in the combination of Willner and Park to connect the raised side walls to the structural bridge.

208. Additionally, I understand that Gamevice contends that components that are screwed together are separate and distinct components, forming no structural portion of the structural bridge, as recited. Ex. 1018 ('1197 Initial Determination) at 153 (“In the Nintendo Switch, **each of the pair of side rails are separate and distinct structures from the upper frame, forming no structural portion of the upper frame.** See CX-0001C at Q/A 483-484; CDX-0001C at 76. Nintendo’s manual identifies them as separate and distinct, they are made of different materials, they serve different functions, and **the screws attaching them together can be removed.**” (emphasis added)).

209. A POSITA would have understood that one known design choice for connecting Willner's side walls to Park's adjustable bridge would have been to use screws. Screws are commonly used to affix components, one to another, in portable electronics. For example, in the iPhone 4, released in 2010, screws were used to attach the rear case to the front of the phone.²³ The screws were 0.8 mm long,²⁴ and were capable of fixedly attaching components within a device, in a manner that uses only a small footprint. Even smaller screws were known and commercially available. Numerous other components within the iPhone 4 were also connected to each other via screws.

210. The use of screws in portable electronics was common, and a POSITA would have been motivated to use such screws to connect Willner's side walls and Park's adjustable bridge, including to allow for replacement or repair, in the case of damage or malfunction to the connectors in the side walls. Indeed, the iPhone 4 used screws in the manner it did to allow for servicing the interior components of the device.

211. Additionally, the embodiments in Figures 14–26 of the '393 patent, which are pertinent to the challenged claims, disclose only the following

²³ <https://www.ifixit.com/Teardown/iPhone+4+Teardown/3130> (last visited March 2, 2023).

²⁴ <https://www.adafruit.com/product/892> (last visited March 2, 2023).

connections between the “structural bridge 322” and “confinement structures 316”:
“The structural bridge 322 is preferably secured to a select confinement structure of the pair of confinement structures 316 by way of solid connection 324, and to the remaining confinement structure of the pair of confinement structures 316 by way of a slip fit 316.” ’393 patent (Ex. 1001) at 9:60–67. The ’393 patent thus not only discloses that “separate and distinct” confinement structures can be connected to the structural bridge by a detachable connection, but it also discloses that the connection can be “solid.” A POSITA would have understood that one form of a solid connection would be to screw the components together.

212. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

2. Claim 2: *The combination of claim 1, in which the rigid structural bridge supports electronics associated with the computing device.*

213. As described above in ¶¶ 146–158 and ¶¶ 173–176 regarding limitations 1[b][1] and 1[c][1], a POSITA would have incorporated Park’s rigid, adjustable structural bridge in Willner’s device. Claim 2 also recites that the structural bridge supports electronics associated with the computing device. Park taught that its structural bridge supported electronics associated with the computing device. Park disclosed that a “mobile phone is seated on the upper face of the bridge” or “mounted” on the bridge. Park (Ex. 1004) at Abstract, ¶¶ 38–39,

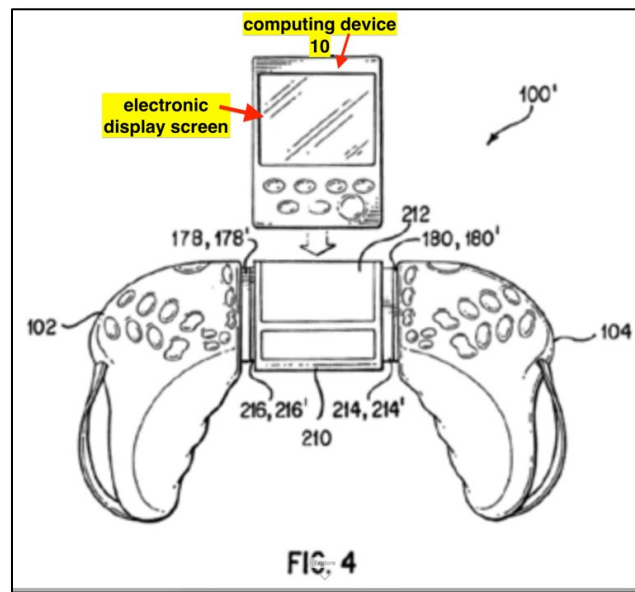
Fig. 3. In the combination, Park’s bridge would have supported any device “seated” or “mounted” thereon, including any electronics in the device, such as CPUs, display drivers, communication chips or modules, memory chips, and the like.

214. The combination of Willner and Park rendered this claim obvious.

3. **Claim 3:** *The combination of claim 2, in which the computing device further comprising a back, the back provides an internal surface, an external surface and cooperates with the at least two opposing sides of the computing device.*

215. Willner disclosed a computing device in the form of a “palm/tablet size computing device 10”: “Referring now to Fig. 4, there is shown the hand grippable combined keyboard and game controller system 100 which can communicate with ... **a palm/tablet sized computing device 10** which is received within an adaptor 210.” Willner (Ex. 1003) at ¶ 50 (emphasis added).

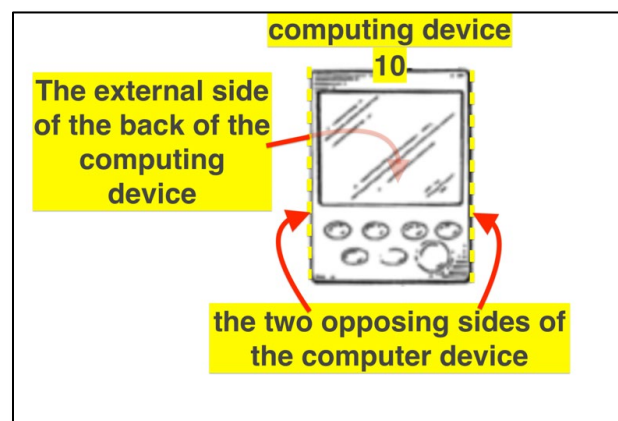
216. The device is shown in Willner’s Figure 4 below:



Willner Fig. 4 (annotated)

217. A device such as the palm or tablet sized computing device disclosed in Willner would have had a back with both an internal and external surface. The external surface would be the side that faces the user when looking at the back of the device. The internal surface of the back would be the side that faces the components inside the device, such as CPUs, display drivers, communication chips, memory chips, and the like. Having a back with internal and external surfaces allows the device to have space within its housing to contain electronics.

218. The figure below shows the external side of the back of the computing device 10, as well as the two opposing sides of the device.



Willner Fig. 4 (modified for clarity and annotated)

219. The back of the computing device would also have cooperated with (worked with) the two opposing sides to form the device housing.

220. Therefore, the combination of Willner and Park rendered this claim obvious.

4. Claim 4: *The combination of claim 3, in which the rigid structural bridge cooperates with the back of the computing device.*

221. As described above in ¶¶ 146–158 and ¶¶ 173–176 regarding limitations 1[b][1] and 1[c][1], a POSITA would have incorporated Park’s rigid, adjustable structural bridge in Willner’s device.

222. Park’s structural bridge cooperated (worked with) with the back of the computing device. Park disclosed a structural bridge that secured first body 10 and second body 20 one to the other, while supporting the computing device. Park (Ex. 1004) at Abstract (disclosing “a bridge that connects that first body and the second body and whose length is adjustable, and is characterized in that... the first body and the second body respectively in contact with either side of the mobile phone”). Park further disclosed that a “mobile phone is seated on the upper face of the bridge.” Park (Ex. 1004) at Abstract. And Park disclosed that the bridge (30, 40) when “located beneath the mobile phone (1) when the mobile phone is mounted on the device according to the present invention, supports the mobile phone (1).” Park (Ex. 1004) at ¶ 40.

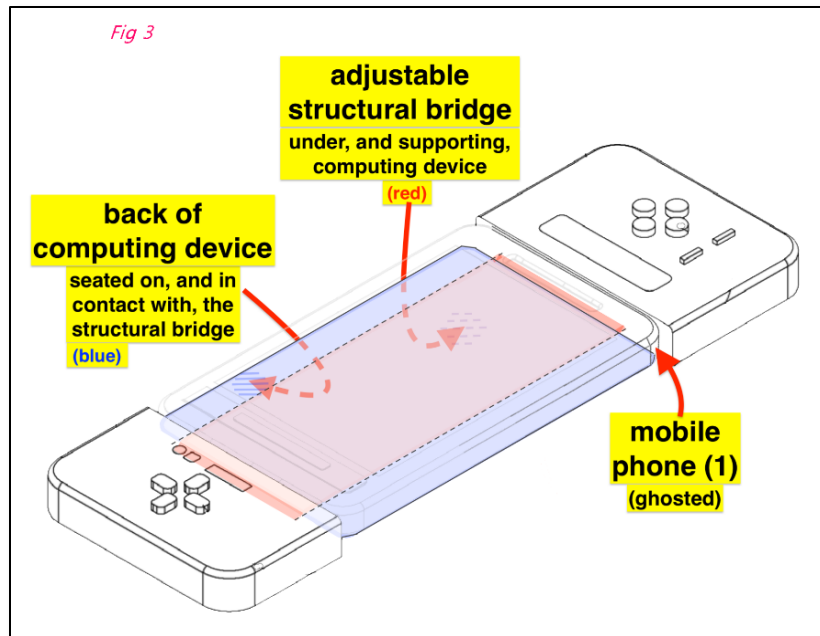


Fig. 3 of Park (modified and annotated for clarity)

223. In the combination of Willner and Park, Park’s adjustable bridge would have served the same function of supporting the back of a computing device.

224. Therefore, the combination of Willner and Park rendered this claim obvious.

5. **Claim 5:** *The combination of claim 4, in which the rigid structural bridge cooperating with the back of the computing device is adjacent to the external surface of the back of the computing device.*

225. As described above in ¶¶ 221–224 regarding claim 4, the combination of Willner and Park rendered obvious a rigid structural bridge cooperating with the back of a computing device. When a computing device is “seated” or “mounted” on top of Park’s structural bridge in the combination, the structural bridge is

adjacent (nearby but not necessarily next to) the back of the device. This is reflected in Park’s Figure 3, as shown below. Park (Ex. 1004) at Abstract, ¶¶ 38–39, Fig. 3.

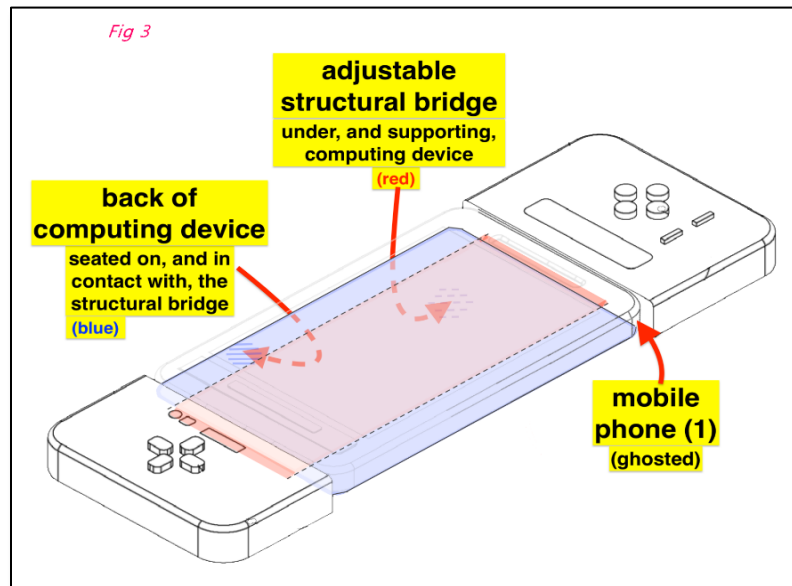


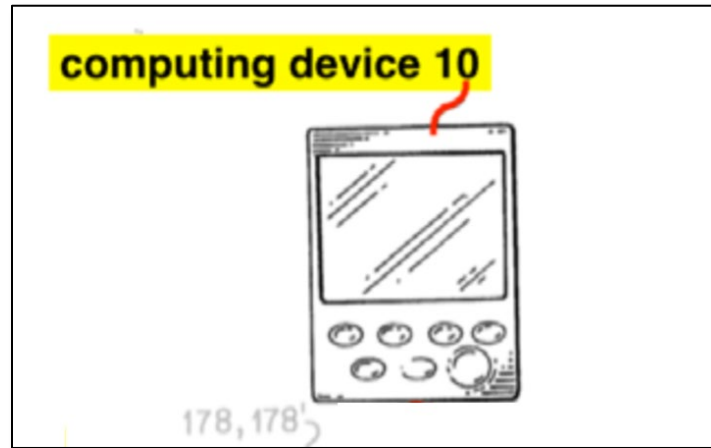
Fig. 3 of Park (modified and annotated for clarity)

226. Therefore, the combination of Willner and Park rendered this claim obvious.

6. **Claim 6:** *The combination of claim 4, in which the computing device comprises an electronic display screen, and wherein at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link to the computing device, the signals passed to the computing device controlling images displayed on the electronic display screen of the computing device.*

227. Willner disclosed a computing device in the form of computing device 10, as shown below. Willner (Ex. 1003) at ¶ 50, Fig. 4. Park likewise disclosed computing devices in the form of “touchscreen type mobile phones for gaming.”

Park (Ex. 1004) at ¶ 1–3, Fig. 4 (emphasis added). As shown below, Willner discloses that its computing device had an electronic display screen.



Willner Fig. 4 (closeup and annotated)

228. As discussed above in ¶¶ 193–198 regarding limitation 1[d][3], Willner disclosed, and the combination of Willner and Park would have included, “each game control module in electronic communication with the communication link of its corresponding confinement structure.” Therefore, the combination would also include “at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link.”

229. Further, as discussed above in ¶¶ 159–172, 181–185 regarding limitations 1[b][2][a], [b] and 1[c][2][b], Willner disclosed confinement structures comprising communication links configured for communication with the computing device, which receive signals from the game control modules and

transmit them to the computing device. These confinement structures would be maintained in the combination of Willner and Park.

230. The combination of Willner and Park thus included Willner's game control modules (housings 102, 104), communication links (connectors 214' and 216'), and computing device 10 with an electronic display screen. The combination also included signals that are passed from the game control modules to the communication links, where the communication links received and transferred those signals "to the computing device."

231. Willner further taught that "the signals passed to the computing device control[] images displayed on the electronic display screen of the computing device." Willner disclosed that its electronic game control modules (housings 102, 104) control "direction" of objects, such as a cursor, or control "particular maneuvers of the game icons, such as jumping, flying and the like." Willner (Ex. 1003) at ¶ 40 ("The multidirectional switches 188 and 200 may be utilized for inputting cursor control type inputs, or alternately particular switches of the control switch grouping 114, 116 may be utilized to provide **directional inputs to the game software**. Alternatively, the cursor control grouping 140, 170 could be utilized as **directional inputs to a game**. Other switches of the switch groupings 114, 116, 118, 120 can be utilized for input of individual switch closures **that are used by the game software to control the firing of weapons and/or provide**

control of particular maneuvers (*sic*) of the game icons, such as jumping, flying, and the like.” (emphasis added)). Thus, a POSITA would have understood that Willner disclosed that the signals from the electronic game control modules, which are passed to the computing device, control images displayed on the electronic display screen of the computing device.

232. Therefore, the combination of Willner and Park rendered this claim obvious.

7. Claim 7: *The combination of claim 2, in which the electronics supported by the rigid structural bridge is a communication module associated with the computing device.*

233. As discussed above in ¶ 213 regarding claim 2, Park’s rigid structural bridge supports the computing device in the combination of Willner and Park, including the electronics within the computing device. Willner further disclosed that the computing device 10 can send and receive signals via a “wireless data link ... utilizing the ‘blue tooth’ standard.” Willner (Ex. 1003) at ¶50. As a result, Willner disclosed that the electronics supported by the rigid structural bridge included a communication module associated with the computing device.

234. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

B. Obviousness Based on Schoenith in view of Park

235. The following section provides an analysis that demonstrates how the combination of Schoenith and Park rendered obvious claims 1–7. As noted above in ¶¶ 133–139, a POSITA would have had several reasons to combine the teachings of Schoenith and Park.

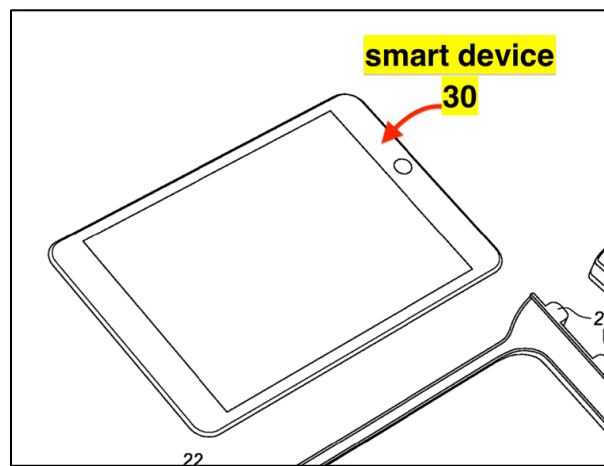
1. Claim 1:

a. Preamble: *A combination comprising:*

236. The combination of Schoenith and Park is a combination of components as discussed below.

b. 1[a]: *a computing device;*

237. Schoenith disclosed a computing device in the form of a smart device, such as an iPhone®, iPad®, or iPad Mini, as shown below. Schoenith (Ex. 1005) at 2:4–10, 6:15–19. Smart devices as disclosed in Schoenith would have been used in the combined device of Schoenith and Park.



Schoenith Fig. 3 (closeup, annotated)

238. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

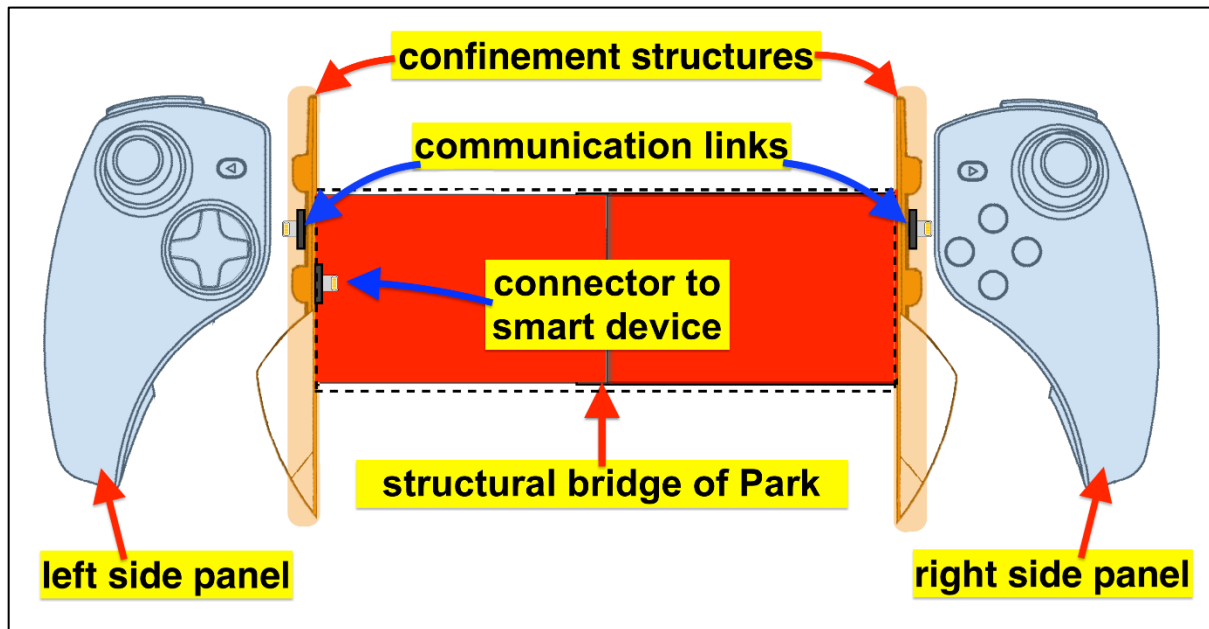
- c. 1[b][1]: *a pair of confinement structures, the pair of confinement structures interacting with the computing device and adjacent at least two opposing sides of the computing device, but not more than three sides of the sides of the computing device,*

239. Schoenith taught that cradle 20 has “raised walls” that are adjacent (nearby but not necessarily next to) any smart device that is inserted into the cradle. Schoenith (Ex. 1005) at Fig. 3, 6:15–50 (“The cradle serves as a support for a smart device ... The cradle may have other features which will enhance secure accommodation of a smart device within the cradle, such as a depression portion, one of more slots, and one or more **raised walls**” (emphasis added)), 9:66–10:3 (“The detachable cradle 20 further includes a raised wall 24 on the right side, left side, and the front side of the detachable cradle 20 to support a smart device 30 once the smart device 30 is inserted into the detachable cradle 20.”).

240. The figure below represents a potential combination of Schoenith and Park, which I will describe in further detail. The combination retains the right and left raised side walls from Schoenith’s device, while adding an adjustable structural bridge taught in Park. In the combination, Park’s bridge would be adjusted to reduce the length of the bridge and thereby “mount” a computing device by having Schoenith’s raised side walls (confinement structures) “apply

pressure” to opposing sides of the computing device. Park (Ex. 1004) at ¶¶ 38–41.

Thus, Schoenith’s side walls are adjacent²⁵ to two opposing sides of the computing device (but not more than three sides of the computing device).



241. As noted above in ¶¶ 133–139, a POSITA would have been motivated to combine Park’s teaching of an adjustable structural bridge with Schoenith’s device, which includes confinement structures.

242. A POSITA would have recognized significant advantages to combining the teachings of Schoenith with Park. Before the date of the alleged invention, there were dozens of mobile devices available from manufacturers such

²⁵ I have applied the construction for *adjacent* that I understand the parties agreed to in the Northern District of California case: “nearby but not necessarily next to.” Ex. 1028 at 5 n.2.

as Apple, Google, Samsung, and LG, among others, running on either Google's Android or Apple's iOS operating systems. There is not, and was not at the time, a standard size for the height or width of a mobile device. For example, Apple alone (one manufacturer out of dozens in the market), had at least nine mobile products actively being used by 2012, representing six different heights:^{26, 27, 28}

Model	Release date	Height
iPhone 3GS	2009	4.5 in.
iPhone 4	2010	4.5 in.
iPhone 4s	2011	4.5 in.
iPhone 5	2012	4.87 in.
iPad 1	2010	9.55 in.
iPad 2	2011	9.49 in.
iPad 3	2012	9.49 in.
iPad mini	2012	7.87 in.
iPad 4 mini	2012	8.00 in.

²⁶ *All Apple iPad versions compared*, SOCIALCOMPARE.COM (last updated June 13, 2020), <http://socialcompare.com/en/comparison/apple-ipad-versions-compared-ipad-air-vs-ipad-mini> (last visited Feb. 20, 2023).

²⁷ Todd Haselton, *Here's every iPhone released, in order, and what changed along the way*, CNBC.COM (Jun. 29, 2017), <https://www.cnbc.com/2017/06/29/every-iphone-released-in-order.html> (last visited Feb. 20, 2023).

²⁸ *List of iPads*, THEIPHONEWIKI.COM (last updated Sept. 21, 2021), https://www.theiphonewiki.com/wiki/List_of_iPads (last visited Feb. 20, 2023).

243. Because of this large variety of sizes, Park’s adjustable bridge would have been a clear enhancement to Schoenith’s controller accessory. A POSITA would have recognized that the feature would have greatly expanded the number of devices that Schoenith’s product would support while reducing the need to use multiple cradles, leading to the predictable result of having a larger base of potential customers. While Schoenith recognized the possibility of using its controller with mobile devices having different sizes (Schoenith (Ex. 1005) at 4:36–39), that would have required different sizes of cradles for each mobile device having a different size. Park’s bridge was a known way of resolving that issue, while eliminating the need to buy a new cradle for each different device, providing the consumer benefits of convenience and cost savings.

244. As noted above in ¶¶ 134-135, the products Schoenith and Park disclose fall within the same category of products – *associated controller accessories for handheld gaming computing devices*. For this reason, a POSITA would have been motivated to apply the teachings of Park to Schoenith as it is an example of improving a similar device. Also, as discussed in ¶¶ 136–139 above, Schoenith and Park were both addressing the same general market need. Therefore, a POSITA would have been motivated to combine Park and Schoenith because they would be applying a known technique (the adjustable bridge) to a known

device (in the same market segment) to yield a predictable result (a device compatible with differently sized mobile devices).

245. From an engineering standpoint, a POSITA would have recognized that removing the central portions of Schoenith’s cradle and replacing them with the adjustable structural bridge of Park, while retaining Schoenith’s raised side walls and controller panels, would have led to an improved game control device. Given the technical similarity of the devices, this modification would have been low risk, yielding the predictable result of adding an adjustable width docking compartment. Retaining the confinement structures (raised side walls) would have been important to stabilize the right and left sides of a computing device once the structural bridge is adjusted to adapt to the size of the device. The side walls function to secure the sides of the computing device and hold it in place, and they provide connectors to join the panels and computing device.

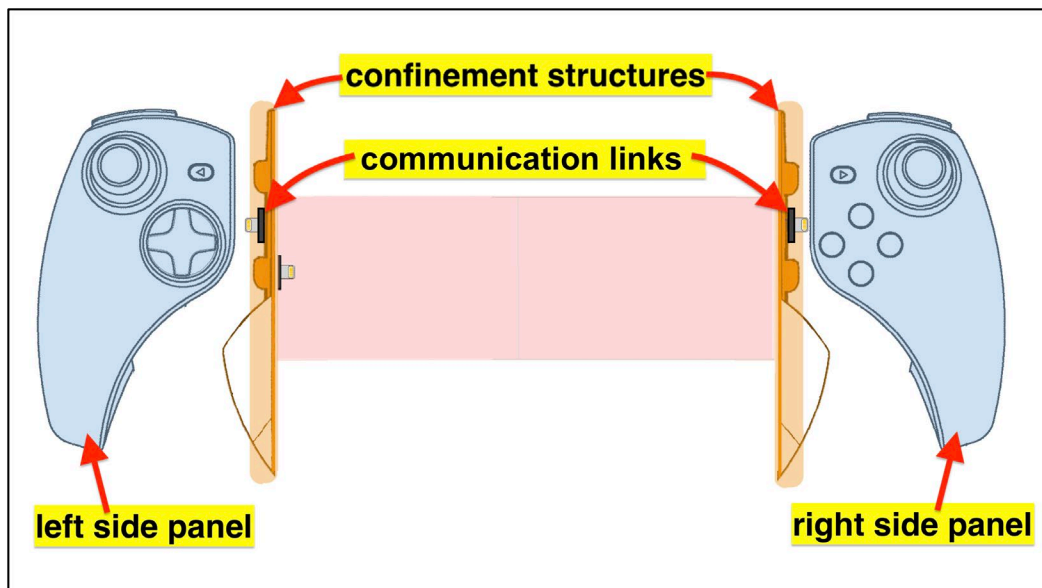
246. As discussed above, Park’s bridge would be adjusted to reduce the length of the bridge and thereby “mount” a computing device by having Schoenith’s raised side walls (confinement structures) “apply pressure” to opposing sides of the computing device. Park (Ex. 1004) at ¶¶ 38–41. When Schoenith’s side walls apply pressure to the opposing sides of the computing device, the side walls physically interact with the opposing sides of the computing device.

247. Additionally, as I explain below at ¶¶ 249-261 with respect to limitation 1[b][2][a], [b], the left and right side walls contain “communication links” (e.g., Lightning® connectors) which receive and transfer data from Schoenith’s panels and transfer that data to the computing device through a device connector (another Lightning® connector), thereby electrically interacting with the computing device. Schoenith (Ex. 1005) at 7:35–48.

248. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

- d. 1[b][2][a]: *each of the pair of confinement structures comprising a communication link,*

249. The combination of Schoenith and Park described above included the raised walls 24 of Schoenith as confinement structures. The figure below shows the confinement structures, highlighted in orange.



Potential combination of Schoenith and Park

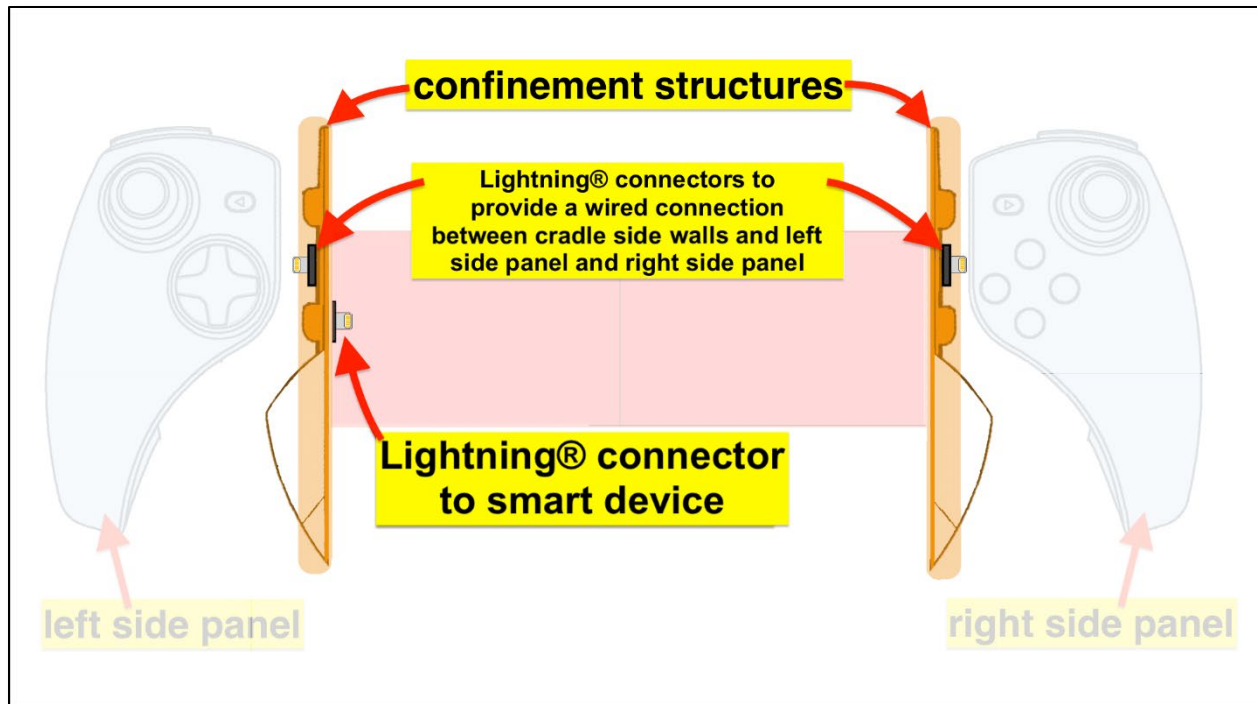
250. Schoenith disclosed that its cradle and raised walls may include wired and wireless communication links. Schoenith (Ex. 1005) at 7:35–48 (“**For example, the controller may include at least one wireless connection, such as Bluetooth® or infrared light- emitting diodes (LEDs) for exchanging data between the smart device and the controller in the right side panel, left side panel, the chassis, the cradle, or a combination thereof The controller may include at least one power connector to provide a wired connection between the smart device and the controller in the right side panel, left side panel, the cradle, or a combination thereof. The at least one power connector may be any connector typically utilized to connect a smart device to a host device, such as a 30-pin dock connector or Apple Lightning® connector.**” (emphasis added)).

251. For wired connections, Schoenith disclosed that the “connector” was for “power” and was also “utilized to connect a smart device to a host device.” Schoenith (Ex. 1005) at 7:42–48. A POSITA would thus have understood this disclosure to teach a wired “connector” (*e.g.*, Lightning® connector) providing both power and communication of data. Because such connectors are a component for reception and transmission of data, the connectors are a “communication link” as recited.

252. Schoenith also disclosed that one or more connections (and connectors) could be part of the cradle, part of the control panel 3 and 4, and part

of the smart device 30. Schoenith (Ex. 1005) at 7:35–48 (“at least one power connector”). A POSITA would thus have understood that Schoenith’s cradle provided for wired connections between (1) the cradle and each of the control panels; and (2) the cradle and the smart device. As illustrated below, in the combination of Schoenith and Park, a POSITA would have been motivated to include Lightning® connectors on each side wall going to each respective panel to accomplish Schoenith’s disclosure that the connectors could be used to “provide a wired connection between the smart device and the controller in the right side panel [and] the left side panel.” Schoenith (Ex. 1005) at 7:42–45.

253. The image below shows an example of the combination of Schoenith and Park where wired connections are provided between the panels and the raised walls, and between one raised wall and the smart device. In this example, Lightning® connectors are located in the raised walls and provide a wired connection to the left and right side panels, and another Lightning® connector is located on the inside of one of the raised walls providing a wired connection to the smart device.



Potential combination of Schoenith and Park

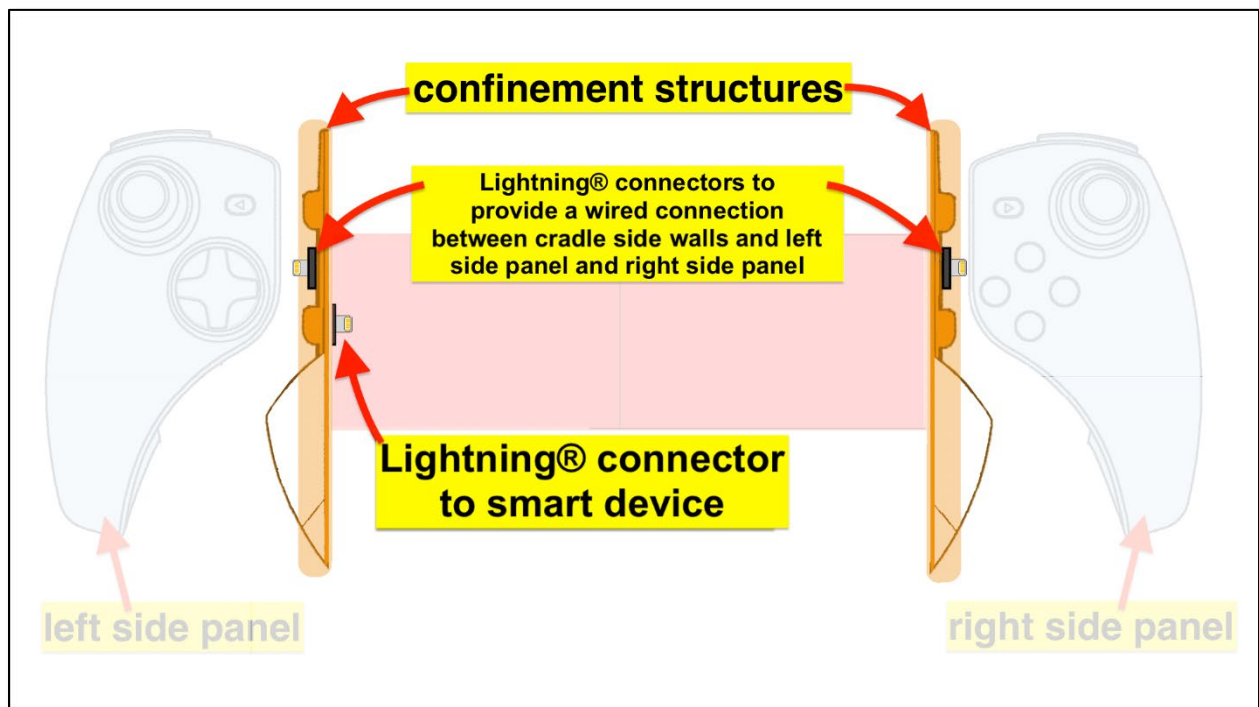
254. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

- e. 1[b][2][b] *each of the communication links configured for electronic communication with the computing device; and*

255. As described above at ¶¶ 249–254, a POSITA would have understood that, to accomplish Schoenith’s disclosure that connectors could be used to “provide a wired connection between the smart device and the controller in the right side panel [and] the left side panel,” wired connectors (Lightning® connectors) would exist in one or both of the raised walls to connect the control panels to the raised walls, and to connect one or more of the raised walls to the smart device. In the combination of Schoenith and Park, the connectors allow

communication between the control panels and the cradle's raised walls, and between the cradle's raised walls and the smart device 30. Schoenith (Ex. 1005) at 7:35–48.

256. Additionally, as shown below, if the connector to smart device 30 is on the inside of one raised wall, the panel corresponding to that wall communicates with the smart device 30, for example, by sending signals to a “power connector” on the outside of the raised wall, which are, in turn, sent to the connector going to the smart device.



Potential combination of Schoenith and Park

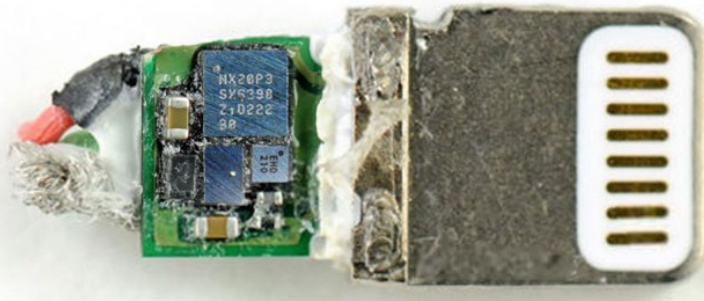
257. A POSITA would also have understood that in this embodiment, the panel on the other side is configured to send signals through a connector on the outside of the raised wall adjacent it (that lacks a connector to the smart device)

and through a wire in Park’s adjustable bridge (see ¶¶ 266–269 below regarding limitation 1[c][2][a]) to the raised wall on the other side of the combination for transmission through the device connector to the smart device 30. The specification describes a similar configuration where an “interface feature 338” is provided as part of a confinement structure and allows wired communication with a computing device. ’393 patent (Ex. 1001) at 10:21–29, 10:35–39, Figs. 18–19.

258. In the combination of Schoenith and Park, each of the communication links (Lightning® connectors) in the confinement structures (Schoenith’s raised side walls) would thus have been configured for communication with the computing device (smart device 30).

259. Schoenith also disclosed that its communication links were configured for “electronic” communication (“the flow of information between two components represented by the use of electricity controlled by and/or mediated through an electron device, such as a vacuum, gas, transistor, or semiconductor”) with the computing device. Schoenith disclosed that Lightning® connectors may be used to communicate data from the control panels to cradle’s raised walls, and from the cradle’s raised walls to the smart device. Schoenith (Ex. 1005) at 7:42–

48. A Lightning® connector, such as the one from 2012 shown below,²⁹ has numerous electron devices, including four chips, two of which are a TI BQ2025 (which has about 5K of logic gates) and a NXP NX20P3 (an integrated circuit).³⁰



260. The Lightning® connector has these components, in part because it “features fewer direct connections than the prior generation connector,” and “needs to apply some intelligence” as to what is being sent and received.³¹ The connector

²⁹ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

³⁰ *Apple’s Lightning Cable for iPhone 5 has a ‘mystery chip’*, PCMAG.COM (Oct. 16, 2012), <https://www.pcmag.com/archive/apples-lightning-cable-for-iphone-5-has-a-mystery-chip-303974> (last visited March 2, 2023).

³¹ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

also provides a “handshake” application and “some modest security.”³² A POSITA would therefore have understood that, unlike a plain wire or ribbon connector, the circuitry within the Lightning® connector controls and/or mediates, in several respects, the “flow of information between two components [*i.e.*, Schoenith’s control panels and smart device 30] represented by the use of electricity.”

261. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

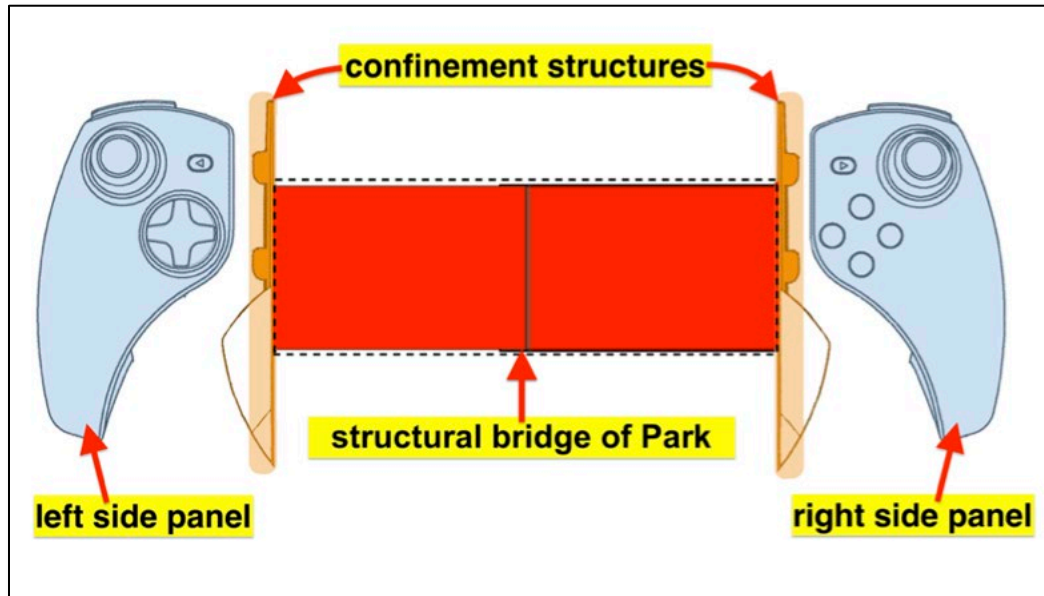
- f.** 1[c][1]: *a rigid structural bridge disposed between and secured to the pair of confinement structures,*

262. The combination of Schoenith and Park rendered this claim limitation obvious. As discussed above in ¶¶ 239–261 regarding limitation 1[b][1] and 1[b][2][a], [b], a POSITA would have been motivated to combine Park’s teaching of an adjustable structural bridge with Schoenith’s cradle, and in doing so would have maintained Schoenith’s side walls, including “power connector[s]” (*e.g.*, Lightning® connectors), as confinement structures. In this arrangement, the structural bridge would be between the confinement structures and would be attached to (secured to) the confinement structures. Park (Ex. 1004) at Abstract,

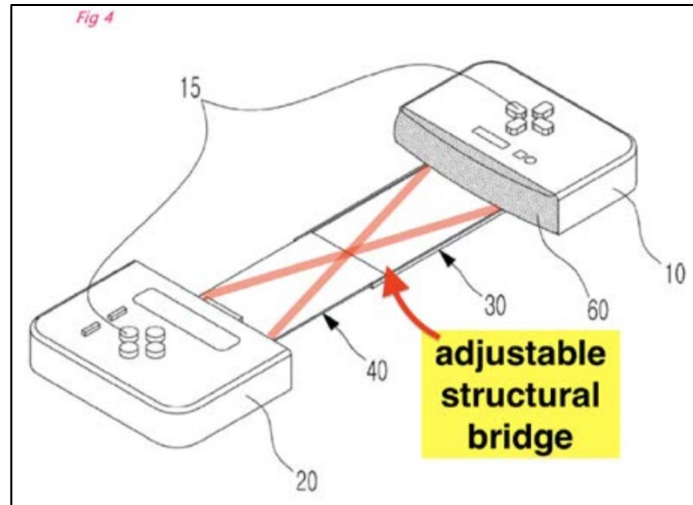
³² *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012),

<https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

¶¶ 8, 13, 26, 32, 40. As such, the structural bridge would be a physical apparatus that secures the confinement structure to each other across a distance.



263. Additionally, Park’s bridge is a rigid structure. Park disclosed a bridge that secures first body 10 and second body 20 one to the other, as shown below. Park (Ex. 1004) at Abstract (disclosing “a bridge that connects that first body and the second body and whose length is adjustable, and is characterized in that ... the first body and the second body respectively in contact with either side of the mobile phone”). Park taught that its bridge comprises two sliding portions connected via a series of recessed catching holes and protrusions. Park (Ex. 1004) at ¶¶ 9, 14, 33. Park further disclosed that its “connecting assembly... allows for stable seating of a mobile phone.” Park (Ex. 1004) at ¶ 1.



Park Fig. 4 (annotated)

264. Based on its teachings, Park’s bridge is a rigid structure in order to properly accomplish its functions. Those functions include supporting a mobile phone by providing rigidity so the phone can be “seated” or “mounted” on top of the adjustable structural bridge. Park (Ex. 1004) at ¶¶ 8, 13, 30, 40. The bridge also provides a stable and rigid mechanical connection between first body 10 and second body 20. Park (Ex. 1004) at Abstract, ¶¶ 8, 13, 26, 32, 40. The bridge must also support a connecting cable that runs within it. Park (Ex. 1004) at ¶¶ 26, 36. It was also known in the prior art that a rigid bridge provided “secure accommodation” of a computing device. Schoenith (Ex. 1005) at 8:43–60 (describing Schoenith’s rigid cradle).

265. Therefore, the combination of Schoenith and Park rendered obvious a rigid structural bridge disposed between and secured to the pair of confinement structures.

- g. 1[c][2][a]: *the rigid structural bridge comprising a passageway between the pair of confinement structures,*

266. As described above in ¶¶ 262–265, the combination of Schoenith and Park would have included Park’s adjustable bridge. Park disclosed an adjustable-length structural bridge that connects the first body and second body (control modules) electrically. Park (Ex. 1004) at ¶ 40 (“**The bridge (30, 40)** whose length can be adjusted and fixed using the above-described method, mechanically and **electrically connects the first body (10) to the second body (20)**” (emphasis added)). Park further disclosed that the control modules, in the form of a first body and second body “equipped with key buttons,” are “**electrically connected by a connecting cable.**” Park (Ex. 1004) at claim 1 (“A game pad device for a mobile phone, comprising: ... a bridge that connects the first body and the second body and whose length is adjustable, and which is characterized in that: **the first body and the second body are electrically connected by a connecting cable**” (emphasis added)).

267. Park also disclosed that the connecting cable runs inside a certain portion or passageway within the bridge and “provides the basis for a combined signal to be entered into a mobile phone (1)” (the computing device). Park (Ex 1004) at ¶ 36 (“**A connecting cable for electrically connecting the first body and second body (10, 20) electrically joins the first body and second body (10, 20)** which are separated from each other and **provides the basis for a combined**

signal to be entered into a mobile phone (1) through a connecting terminal (21). It is connected to the first body (10) and extends along a certain portion of the inside of the bridge (30, 40), connecting to the second body (20)." (emphasis added)); Park (Ex. 1004) at Abstract, ¶¶ 8, 30. A POSITA would have understood that a communication wire being run through a mechanically-active environment, such as the inside of a sliding, retracting and expanding bridge, would necessarily be run through a conduit to physically protect the integrity of the wire.

268. I also note that the Board previously determined that the combination of Schoenith and Park rendered obvious a “structural bridge comprising: a conduit between the pair of control modules.” Final Written Decision, IPR2018-01521 (Ex. 1010) at 18.

269. The combination of Schoenith and Park thus rendered obvious a rigid structural bridge comprising a passageway (“a space that accommodates a communication wire”) between the pair of confinement structures.

- h.** 1[c][2][b]: *the passageway promotes electrical communication between the communication link of a first confinement structure of the pair of confinement structures and the computing device, the passageway further promotes electrical communication between the communication link of a second confinement structure of the pair of confinement structures and the computing device; and*

270. As described above in ¶¶ 239–261 regarding limitations 1[b][1] and 1[b][2][a], [b], the combination of Schoenith and Park taught “confinement

structures which comprise communication links configured for communication with the computing device.” As described above in ¶¶ 266–269 regarding limitation 1[c][2][a], the combination of Schoenith and Park taught a “rigid structural bridge comprising a passageway between the pair of confinement structures.”

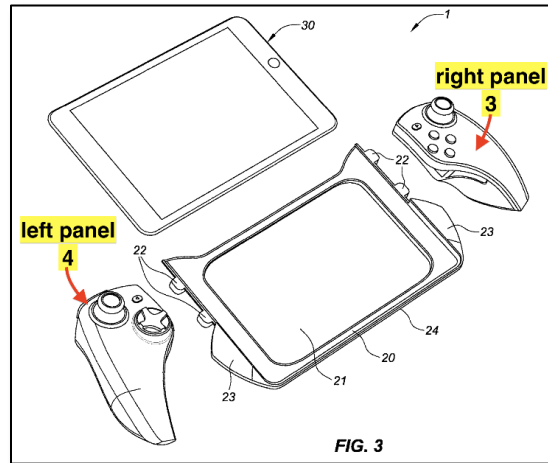
271. Regarding the passageway promoting electrical communication between the confinement structures and the computing device, the combination of Schoenith and Park rendered this feature obvious.

272. A POSITA would have understood that the combination’s conduit (passageway) protects the communication wire and thus the electrical connection between the game controllers (right and left panels) and between the controllers and the smart device 30. As such, the passageway promotes electrical communication (“the flow of information between two components represented by the use of electricity”) between the two game controllers, between their related raised side walls (including Lightning® connectors), and between the controllers and a computing device (through another Lightning® connector to the smart device).

273. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

- i. 1[d][1]: *a pair of electronic game control modules,*

274. Schoenith disclosed a pair of electronic game control modules, in the form of right panel 3 and left panel 4, as shown below. Schoenith described these panels as “game controllers.” Schoenith (Ex. 1005) at 1:6–8, 5:45–50.

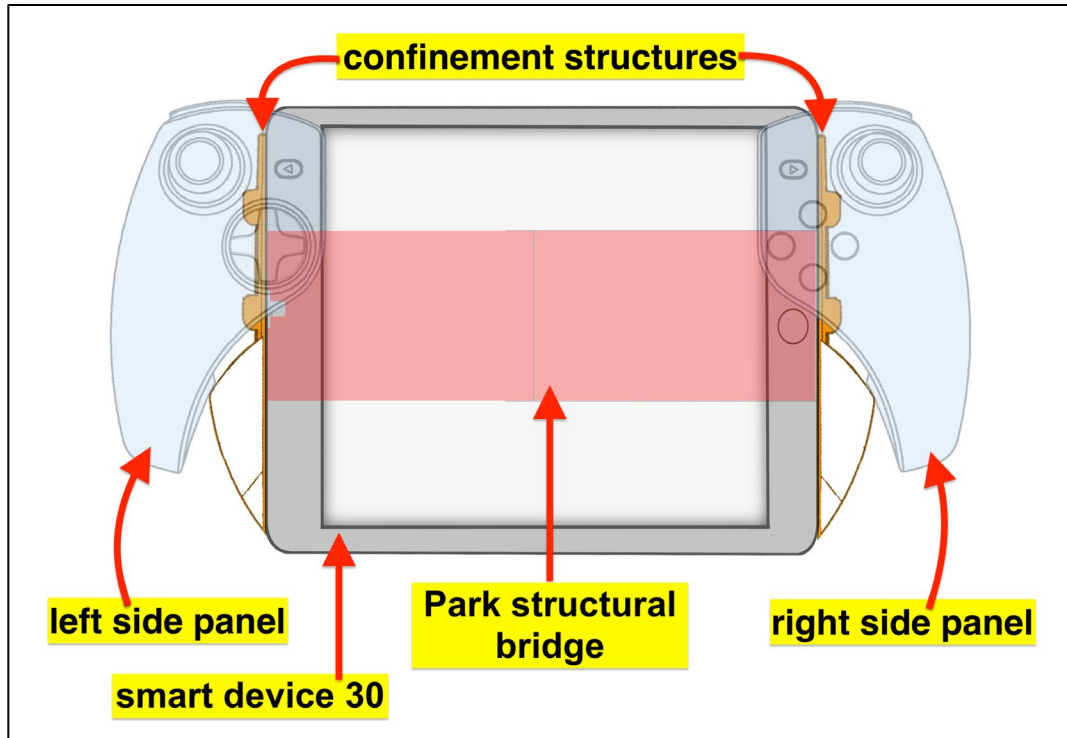


Schoenith Fig. 3 (annotated)

275. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

- j. 1[d][2]: *each electronic game control module of the pair of electronic game control modules is secured to and interacts with a corresponding confinement structure of the pair of confinement structures,*

276. The combination of Schoenith and Park included electronic game control modules, Schoenith’s right and left panels 3 and 4, which are secured to and interact with corresponding confinement structures, and Schoenith’s left and right raised cradle walls 24. These structures are shown in the figure below.



Potential combination of Schoenith and Park
with game control modules secured to confinement structures

277. The left and right panels are attached to the cradle 20 with “connection parts.” Schoenith (Ex. 1005) at 2:28–32 (“The smart device may be inserted into the depression portion of the cradle so that the cradle can support the smart device, and wherein **the cradle with the smart device is attached to the right side panel and the left side panel.**” (emphasis added)), 7:14–29 (“**The cradle may be attached to the right side panel on the right side and the left side panel on the left side.** ... The connection can be **any connection commonly utilized in controllers**, preferably a connection which allows for easy and frequent assembly and disassembly of the controller, such as a magnetic connection, a snap-fit connection, mechanical keys, a combination thereof, or the like.” (emphasis

added)). One potential connection is a “magnetic connection” where magnets of opposing polarity in the panels and raised walls create a connection based on complementary magnetic forces. In that example, the panels and raised walls interact by means of attractive magnetic forces.

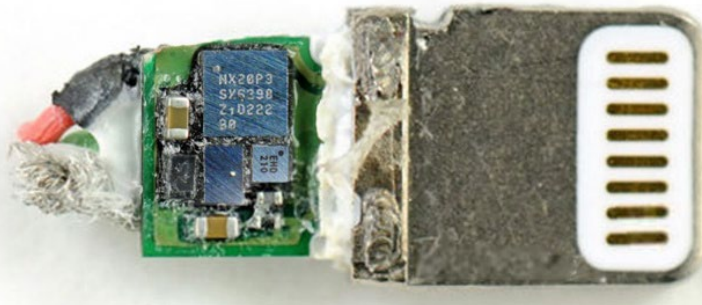
278. Additionally, as described above at ¶¶ 249–261 regarding limitation 1[b][2][a], [b], Schoenith disclosed that its device could include “power connector[s]” in the cradle. The “connectors” were for “power” and were also “utilized to connect a smart device to a host device.” Schoenith (Ex. 1005) at 7:42–48. A POSITA would have understood this disclosure to teach that a wired “connector” (*e.g.*, Lightning® connector) would provide both power and communication of data. A POSITA would also have understood that the wired connections Schoenith disclosed could exist in one or both of the raised walls 24 to connect to the control panels (and to the smart device). In this arrangement, the electronic game control modules would electrically interact with the communication links (Lightning® connectors) of the confinement structures (raised side walls).

279. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

- k. 1[d][3]: *each electronic game control module in electronic communication with the communication link of its corresponding confinement structure,*

280. As discussed above at 276–279 regarding limitation 1[d][2], Schoenith disclosed that each of its electronic game control modules (left and right side panels 3 and 4) can be in communication with the communication link of a corresponding confinement structure, raised walls 24 in cradle 20, through “power connectors” (e.g., Lightning Connectors). Schoenith (Ex. 1005) at 7:42–48.

281. As discussed above at ¶¶ 259–261 regarding limitation 1[b][2][b], the Lightning Connectors disclosed by Schoenith contains numerous electron devices, including four chips, two of which are a TI BQ2025 (which has about 5K of logic gates) and a NXP NX20P3 (an integrated circuit).³³



³³ *Apple’s Lightning Cable for iPhone 5 has a ‘mystery chip’*, PCMAG.COM (Oct. 16, 2012), <https://www.pcmag.com/archive/apples-lightning-cable-for-iphone-5-has-a-mystery-chip-303974> (last visited March 2, 2023).

282. The Lightning Connector has these components, in part because it “features fewer direct connections than the prior generation connector,” and “needs to apply some intelligence” as to what is being sent and received.³⁴ The connector also provides a “handshake” application and “some modest security.”³⁵ A POSITA would therefore have understood that, unlike a plain wire or ribbon connector, the circuitry within the Lightning® connector controls and/or mediates, in several respects, the “flow of information between two components represented by the use of electricity.”

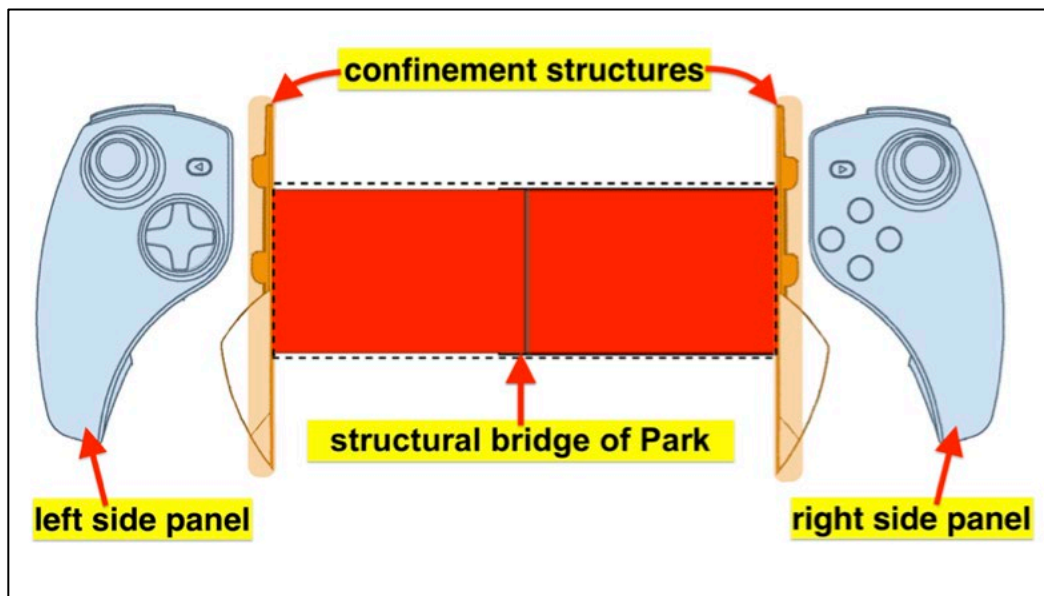
283. The combination of Schoenith and Park rendered this claim limitation obvious.

³⁴ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

³⁵ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

- I. 1[d][4]: *wherein each electronic game control module is a separate and distinct structure from each of their corresponding confinement structures, forming no structural portion of their corresponding confinement structures, and*

284. Schoenith disclosed confinement structures comprised of the raised wall (lip) 24 of cradle 20. Schoenith also disclosed electronic game control modules (left and right side panels 3 and 4) that are detachable from and thus separate and distinct structures from each of the corresponding confinement structures, forming no structural portion of their corresponding confinement structures. Schoenith (Ex. 1005) at Fig. 3, 9:57–10:3. The combination of Schoenith and Park included the separate game control modules and confinement structures from Schoenith, as shown in the figure below.



285. Therefore, the combination of Schoenith and Park rendered this claim limitation obvious.

- m. 1[d][5]: *in which each of the pair of confinement structures are separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge.*

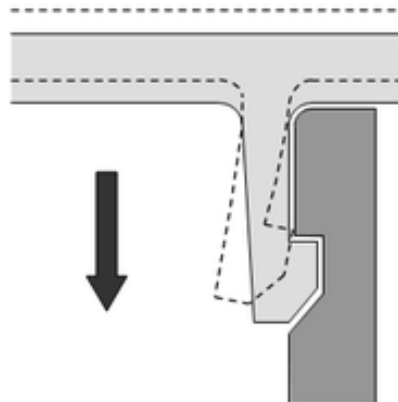
286. As explained above in ¶¶ 262–265 regarding limitation 1[c][1], a POSITA would have been motivated to combine Park’s teaching of an adjustable structural bridge with Schoenith’s controller.

287. In engineering the combination as described, removing the central portion from Schoenith’s cradle would naturally result in the pair of confinement structures (raised walls including connectors) ending up as two separate and distinct structures. Park’s structural bridge is itself disclosed to be a separate and distinct component from the reference’s first and second game pad control bodies (housing electronics and input controls). Park (Ex. 1004) at ¶¶ 27 (“The first body (10) is connected to the bridge (30, 40) at the bottom of one side.”), 28 (“The second body (20) is also connected to the bridge (30, 40) at the bottom of one side.”), Fig. 1.

288. Incorporating Park’s bridge into Schoenith’s device would have resulted in a structural bridge that is separate and distinct from Schoenith’s confinement structures. That is consistent with Park’s teachings. In addition, whether to maintain the raised walls as a separate and distinct structure would have been a known design choice (*e.g.*, unitary molding, separate components attached via detachable connectors such as snap fit connectors, etc.). A POSITA would also

have been motivated to incorporate Park's structural bridge as designed (*i.e.*, as a separate and distinct structure) because this would have been the use of known components, as originally designed to be used, to end up with a predictable result. As Park taught, the bridge is connected to the separate side walls at the bottom of the side walls. Thus, in the combination of Schoenith and Park, Schoenith's raised walls (confinement structures) would be separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge.

289. For example, Schoenith's confinement structures could be firmly, but detachably connected to Park's adjustable bridge, using secure snap-fit connectors, which were available the time of the filing of the '393 patent. The image below³⁶ illustrates the operation of a snap-fit connector.



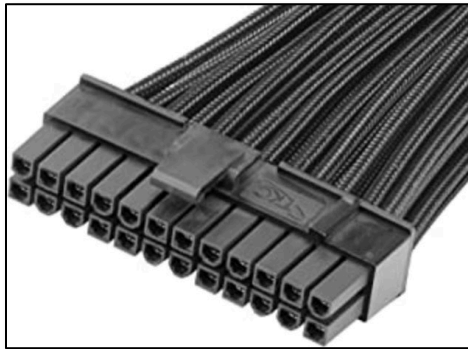
³⁶ https://commons.wikimedia.org/wiki/File:Cantilever_Snap-fit.PNG (last visited March 4, 2023).

290. Examples of the use of such snap-fit connectors are shown below.

Pictured immediately below is an adapter for a mobile computer³⁷ which attaches to the device through snap-fit connectors.



291. Electronic connectors³⁸ often use snap-fit technology for a secure yet detachable connection.



³⁷ <https://www.amazon.com/Intermec-850-567-001-Adapter-Mobile-Computer/dp/B004LORDRE> (last visited March 4, 2023).

³⁸ <https://www.amazon.com/Motherboard-Power-Extension-Cable-Female/dp/B07F38ZSJW> (last visited March 4, 2023).

292. The use of a such a connector would have provided several benefits, in addition to being a known design choice. As noted above, such connectors would have provided a secure connection and thus held the combination together and protected it from stresses encountered during normal gameplay and usage. Additionally, a detachable connection would have allowed for easier access to repair or replace components in the event of failure or malfunction. A detachable confinement structure would also have allowed the consumer to purchase adapters for different connection types, extending the useful life of the accessory product. A POSITA would therefore have been motivated to use such connectors in the combination of Schoenith and Park to connect the raised side walls to the structural bridge.

293. Additionally, I understand that Gamevice contends that components that are screwed together are separate and distinct components, forming no structural portion of the structural bridge, as recited. Ex. 1018 ('1197 Initial Determination) at 153 (“In the Nintendo Switch, **each of the pair of side rails are separate and distinct structures from the upper frame, forming no structural portion of the upper frame.** See CX-0001C at Q/A 483-484; CDX-0001C at 76. Nintendo’s manual identifies them as separate and distinct, they are made of different materials, they serve different functions, and **the screws attaching them together can be removed.**” (emphasis added)).

294. A POSITA would have understood that one known design choice for connecting Schoenith's raised walls to Park's adjustable bridge would have been to use screws. Screws are commonly used to affix components, one to another, in portable electronics. For example, in the iPhone 4, released in 2010, screws were used to attach the rear case to the front of the phone.³⁹ The screws were 0.8 mm long,⁴⁰ and were capable of fixedly attaching components within a device in a manner that uses only a small footprint. Even smaller screws were known and commercially available. Numerous other components within the iPhone 4 were also connected to each other via screws.

295. The use of screws in portable electronics was common, and a POSITA would have been motivated to use such screws to connect Schoenith's raised walls and Park's adjustable bridge, including to allow for replacement or repair, in the case of damage or malfunction to the raised walls or the connectors in the raised walls. Indeed, the iPhone 4 used screws in the manner it did to allow for servicing the interior components of the device.

296. Additionally, the embodiments in Figures 14–26 of the '393 patent, which are pertinent to the challenged claims, disclose only the following

³⁹ <https://www.ifixit.com/Teardown/iPhone+4+Teardown/3130> (last visited March 2, 2023).

⁴⁰ <https://www.adafruit.com/product/892> (last visited March 2, 2023).

connections between the “structural bridge 322” and “confinement structures 316”:
“The structural bridge 322 is preferably secured to a select confinement structure of the pair of confinement structures 316 by way of solid connection 324, and to the remaining confinement structure of the pair of confinement structures 316 by way of a slip fit 316.” ’393 patent (Ex. 1001) at 9:60–67. The ’393 patent thus not only discloses that “separate and distinct” confinement structures can be connected to the structural bridge by a detachable connection, but it also discloses that the connection can be “solid.” A POSITA would have understood that one form of a solid connection would be to screw the components together.

297. Therefore, the combination of Schoenith and Park rendered this claim obvious.

2. Claim 2: *The combination of claim 1, in which the rigid structural bridge supports electronics associated with the computing device.*

298. As described above in ¶¶ 239–248 and ¶¶ 262–265 regarding limitations 1[b][1] and 1[c][1], a POSITA would have incorporated Park’s rigid, adjustable structural bridge in Schoenith’s device. Claim 2 also recites that the structural bridge supports electronics associated with the computing device. Park taught that its structural bridge supports electronics associated with the computing device. Park disclosed that a “mobile phone is seated on the upper face of the bridge” or “mounted” on the bridge. Park (Ex. 1004) at Abstract, ¶¶ 38–39, Fig. 3.

In the combination, Park’s bridge would have supported any device “seat-ed” or “mounted” thereon, including any electronics within the device, such as CPUs, display drivers, communication chips or modules, memory chips, and the like.

299. Schoenith disclosed “a smart device, such as iPhone®, iPad®, iPad Mini, or the like,” Schoenith (Ex. 1005) at 6:15–19, which a POSITA would have understood contains a CPU and electronics under the control of the CPU. In the combination of Schoenith and Park, this smart device is “mounted” on Park’s bridge, and thus the device and its associated electronics are supported by Park’s bridge, as described above.

300. Therefore, the combination of Schoenith and Park rendered this claim obvious.

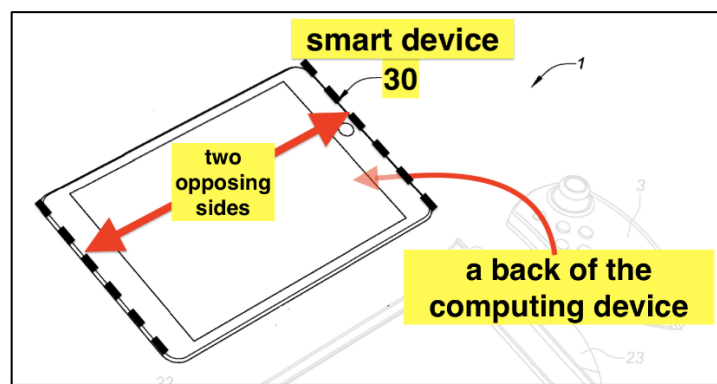
3. Claim 3: *The combination of claim 2, in which the computing device further comprising a back, the back provides an internal surface, an external surface and cooperates with the at least two opposing sides of the computing device.*

301. Schoenith disclosed a computing device in the form of smart device 30: “The cradle serves as **a support** for a smart device[.]...**such as iPhone®, iPad®, iPad Mini,** or the like.” Schoenith (Ex. 1005) at 6:15–19 (emphasis added).

302. A device such as an iPhone, iPad, and iPad Mini has a back with both an internal and external surface. The external surface is the side that faces the user when looking at the back of the device. The internal surface is the side that faces

the components inside the device, such as CPUs, display drivers, communication chips or modules, memory chips, and the like. Having a back with internal and external surfaces allows the device to have space within its housing to contain electronics.

303. The figure below shows the location of the external side of the back of smart device 30, as well as the two opposing sides of the device.



Schoenith Fig. 4 (modified for clarity and annotated)

304. The back of the computing device also cooperated with (worked with) the two opposing sides to form the completed device housing.

305. Therefore, the combination of Schoenith and Park rendered this claim obvious.

4. Claim 4: *The combination of claim 3, in which the rigid structural bridge cooperates with the back of the computing device.*

306. As described above in ¶¶ 239–248 and ¶¶ 262–265 regarding limitations 1[b][1] and 1[c][1], a POSITA would have incorporated Park’s rigid, adjustable structural bridge in Schoenith’s device.

307. Park’s structural bridge cooperated (worked with) with the back of the computing device. Park taught a structural bridge that secures first body 10 and second body 20 one to the other, while supporting the computing device. Park (Ex. 1004) at Abstract (disclosing “a bridge that connects that first body and the second body and whose length is adjustable, and is characterized in that... the first body and the second body respectively in contact with either side of the mobile phone”). Park further disclosed that a “mobile phone is seated on the upper face of the bridge.” Park (Ex. 1004) at Abstract. And Park disclosed that the bridge (30, 40) when “located beneath the mobile phone (1) when the mobile phone is mounted on the device according to the present invention, supports the mobile phone (1).” Park (Ex. 1004) at ¶ 40.

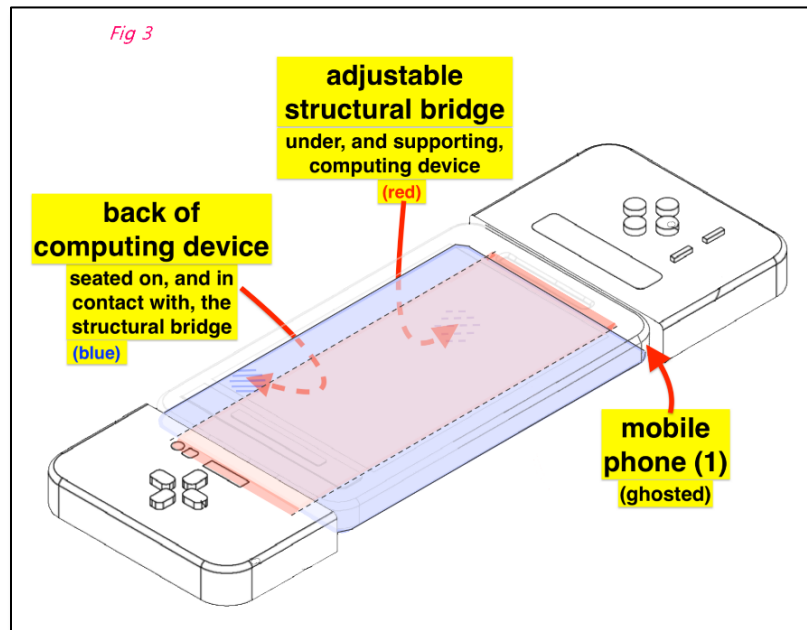


Fig. 3 of Park (modified and annotated for clarity)

308. As part of Schoenith’s device, Park’s adjustable bridge would serve the same function of supporting the back of a computing device.

309. Therefore, the combination of Schoenith and Park rendered this claim obvious.

5. Claim 5: *The combination of claim 4, in which the rigid structural bridge cooperating with the back of the computing device is adjacent to the external surface of the back of the computing device.*

310. As described above in ¶¶ 306–309 regarding claim 4, the combination of Schoenith and Park rendered obvious a rigid structural bridge cooperating with the back of a computing device. When a computing device is “seated” or “mounted” on top of Park’s structural bridge in the combination, the structural bridge is adjacent (nearby but not necessarily next to) the back of the device. This is reflected in Park’s Figure 3, as shown below. Park (Ex. 1004) at Abstract, ¶¶ 38–39, Fig. 3. Park also taught that the bridge (30, 40) when “located beneath the mobile phone (1) when the mobile phone is mounted on the device according to the present invention, supports the mobile phone (1).” Park (Ex. 1004) at ¶ 40. A POSITA would have understood that a rigid structural bridge which is located beneath the computing device, and supporting the computer device, would be adjacent to the external surface of the back of the computing device.

311. This is reflected in Park’s Figure 3, as shown below. Park (Ex. 1004) at Abstract, ¶¶ 38–40, Fig. 3.

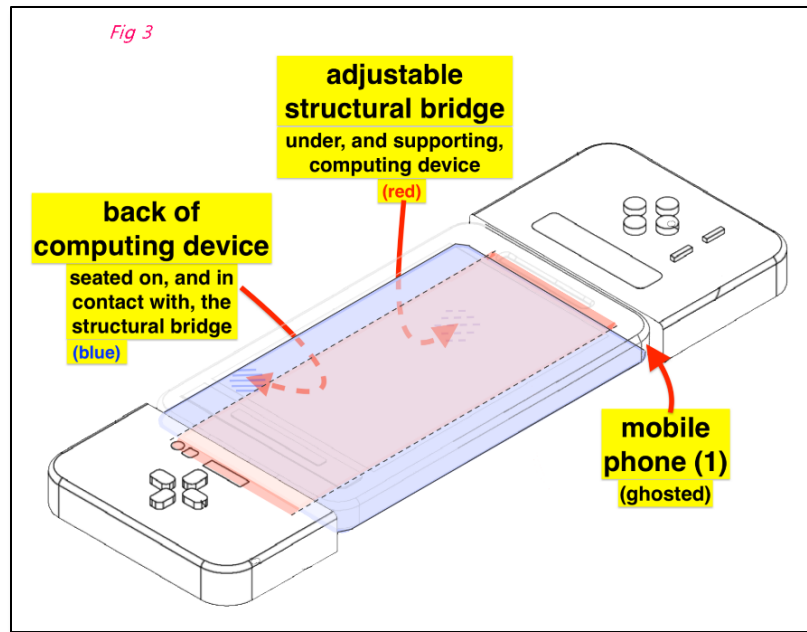
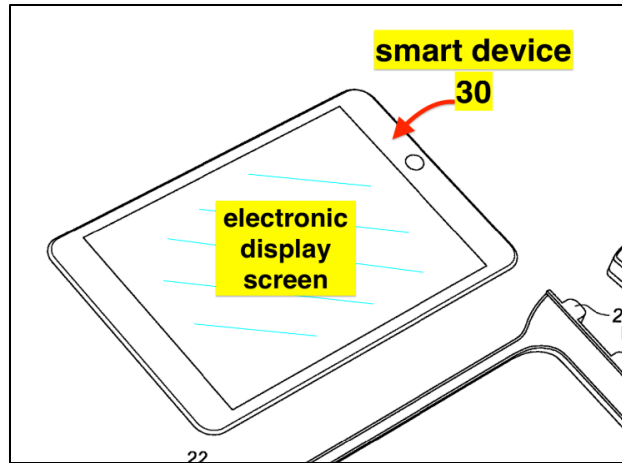


Fig. 3 of Park (modified and annotated for clarity)

312. Therefore, the combination of Schoenith and Park rendered this claim obvious.

6. **Claim 6:** *The combination of claim 4, in which the computing device comprises an electronic display screen, and wherein at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link to the computing device, the signals passed to the computing device controlling images displayed on the electronic display screen of the computing device.*

313. Schoenith disclosed a computing device in the form of smart device 30 (iPhone, iPad, iPad Mini, etc.). As shown below, Schoenith disclosed such a computing device has an electronic display screen.



Schoenith Fig. 3 (closeup, annotated)

314. As discussed above in ¶¶ 280-283 regarding limitation 1[d][3], Schoenith disclosed, and the combination of Schoenith and Park would have included, “each electronic game control module in electronic communication with the communication link of its corresponding confinement structure.” Therefore, the combination would also have included “at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link.” Further, as discussed above in ¶¶ 270–279 regarding limitation 1[b][2][b], Schoenith disclosed confinement structures comprising communication links configured for communication with the computing device, and these confinement structures would have been maintained in the combination of Schoenith and Park.

315. The combination of Schoenith and Park thus included Schoenith’s game control modules (panels 3, 4), communication links, and computing device

(smart device), and as explained below, in the combination, the signals that are passed from the game control modules through the communication links are further passed “to the computing device.”

316. More specifically, Schoenith disclosed that “the signals passed to the computing device control[] images displayed on the electronic display screen of the computing device.” Schoenith disclosed that the purpose of its controller was controlling game software running on the smart device 30. Schoenith (Ex. 1005) at 1:31–36 (“Touch screens also present additional challenges to game users in that the lack of a traditional **keyboard, joystick, or a controller** generally decreases a user’s ability to react with **sufficient comfort, ease, and speed to the demands of a game application.**” (emphasis added)), 1:41–45 (“As another example, **controlling a smart device software application, such as a game application,** by means of a touch screen may present a problem in that a user may block certain parts of the touch screen while engaging fingers on the touch screen.” (emphasis added)), 1:59–62, 2:6–16 (“Therefore, there remains a need for **a game controller accessory** for electronic smart devices that provides a user with enhanced ability to **utilize and enjoy the smart device application software by offering additional control options** besides the touch screen.” (emphasis added)), 2:60–3:5 (“The present teachings provide a controller that is specifically compatible and fit for one or more smart devices ...; therefore, the user is not limited to controlling the smart

device software application with touch screen only. In addition, the controller allows for enhanced enjoyment of the user's smart device **by enabling the user to utilize both hands in controlling the software applications** at the same time” (emphasis added)), 4:44–49 (“Preferably, the controller has an ergonomic shape so that **the controller accommodates one or more fingers** of a right hand and/or **one or more fingers of a left hand**, feels comfortable to the user, **reduces soreness and cramps after extended use**, and allows for 3-D motion enhanced gaming.” (emphasis added)), 5:45–55 (“The right side panel, the left side panel, the chassis, or a combination thereof may include one or more controls, such as **gaming controls, such as an analog stick, dual analog sticks, directional pad, arrow buttons, face action buttons, shoulder buttons**, start and select buttons, on and off buttons, **guide buttons, back buttons, central buttons, or the like**. The right side panel, the left side panel, the chassis, or a combination thereof may also include at least one specialized control, such as a steering wheel. The controls may be single or multi-functional, have a given function or be assigned a variety of functions.” (emphasis added)).

317. The functions assigned to the disclosed “gaming controls” (analog sticks, directional pads, and buttons) include functions for controlling images, such as characters or icons, displayed on the electronic display screen of the computing device. For example, the “directional pad” indicates the direction of movement

(up, down, left, or right) for a virtual object on the screen, like a game character. And the “steering wheel” indicates the direction for moving a vehicle in a game, such as a car racing game. Indeed, one of Schoenith’s purposes was to provide non-touch screen controls to “navigat[e] a game application” so that user would not “block certain parts of the touch screen” while controlling a game. Schoenith (Ex. 1005) at 1:36–47.

318. As a result, the combination of Schoenith and Kessler rendered this claim obvious.

7. **Claim 7:** *The combination of claim 2, in which the electronics supported by the rigid structural bridge is a communication module associated with the computing device.*

319. As discussed above in ¶¶ 298–299 regarding claim 2, Park’s rigid structural bridge supports the computing device in the combination of Schoenith and Park, including the electronics within the computing device. Schoenith further disclosed that the smart device 30 includes electronics that comprise a communication module, such as “Bluetooth® or infrared light-emitting diodes.” Schoenith (Ex. 1005) at 7:42–48; Schoenith (Ex. 1005) at 7:34–41. As a result, Schoenith disclosed that the electronics supported by the rigid structural bridge include a communication module associated with the computing device.

320. The combination Schoenith and Kessler therefore rendered this claim obvious.

C. Obviousness Based on Schoenith in view of Kessler

321. The following section provides an analysis that demonstrates how the combination of Schoenith and Kessler renders obvious claims 1–7. As noted above in ¶¶ 133–139, a POSITA would have had several reasons to combine the teachings of Schoenith and Kessler.

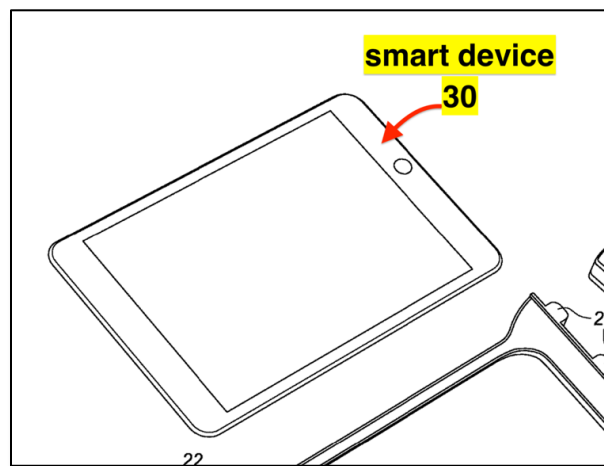
1. Claim 1:

a. Preamble: *A combination comprising:*

322. The combination of Schoenith and Kessler is a combination of components as discussed below.

b. 1[a]: *a computing device*

323. Schoenith disclosed a computing device in the form of a smart device, such as an iPhone®, iPad®, or iPad Mini, as shown below. Schoenith (Ex. 1005) at 2:4–10, 6:15–19. Smart devices as disclosed in Schoenith would have been used in the combined device of Schoenith and Kessler.



Schoenith Fig. 3 (closeup, annotated)

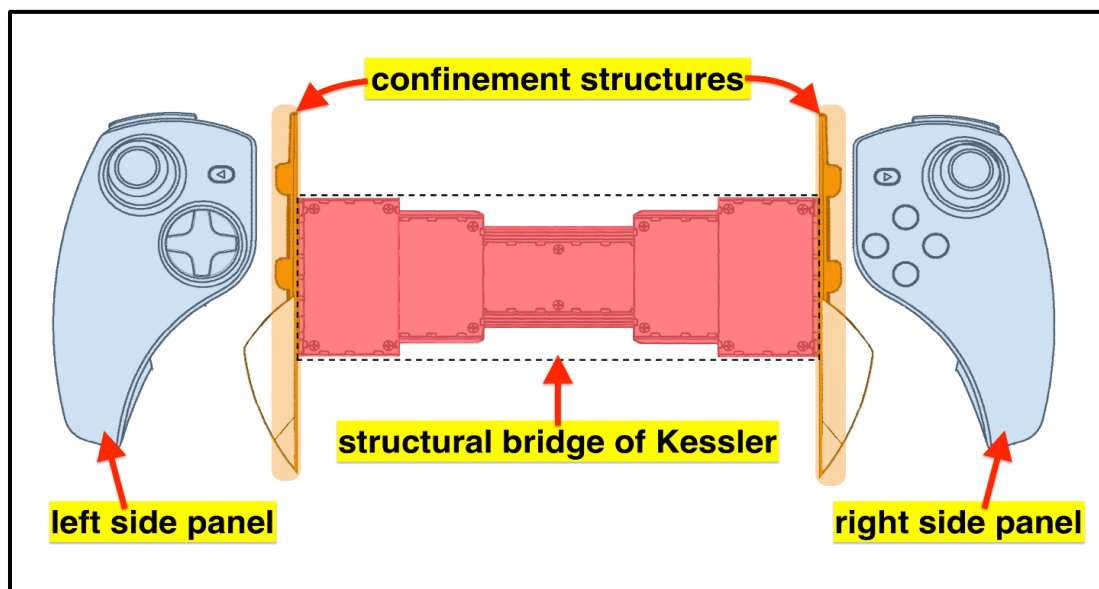
324. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

- c. 1[b][1]: *a pair of confinement structures, the pair of confinement structures interacting with the computing device and adjacent at least two opposing sides of the computing device, but not more than three sides of the sides of the computing device,*

325. Schoenith taught that cradle 20 has “raised walls” that are adjacent (nearby but not necessarily next to) any smart device that is inserted into the cradle. Schoenith (Ex. 1005) at Fig. 3, 6:15–50 (“The cradle serves as a support for a smart device ... The cradle may have other features which will enhance secure accommodation of a smart device within the cradle, such as a depression portion, one of more slots, and one or more **raised walls**” (emphasis added)), 9:66–10:3 (“The detachable cradle 20 further includes a raised wall 24 on the right side, left side, and the front side of the detachable cradle 20 to support a smart device 30 once the smart device 30 is inserted into the detachable cradle 20.”).

326. The figure below represents a potential combination of Schoenith and Kessler, which I will describe in further detail. The combination retains the right and left raised side walls from Schoenith’s device, while adding an adjustable structural bridge taught in Kessler. The right and left side walls are adjacent to two opposing sides of the smart device when the device is inserted. Kessler’s adjustable structural bridge is biased so that it closes around the outside of smart device.

Kessler (Ex. 1006) at ¶¶ 95, 101 (“In a preferred embodiment, the extension mechanism 82 is biased so as to resist movement of the handle housings 12, 14 away from each other and is of a sufficient strength so as to provide a sufficient gripping force for holding a handheld information processing device 70 between respective opposing end faces 12a, 14a of the handle housings 12, 14.”). That function pulls the raised walls attached to the bridge inward toward the ends of the smart device, creating pressure between the walls and the ends. Thus, the raised walls physically interact with opposing ends of the smart device.



Potential combination of Schoenith and Kessler

327. As noted above in ¶¶ 133–139, a POSITA would have been motivated to improve Schoenith by incorporating Kessler’s adjustable structural bridge into Schoenith’s device. Kessler’s adjustable bridge would have benefitted Schoenith’s device. Before the date of the alleged invention (and before), there were dozens of

mobile devices available from manufacturers such as Apple, Google, Samsung, and LG, among others, running on either Google’s Android or Apple’s iOS operating systems. There was not, however, a standard size for a mobile device. For example, Apple alone (one manufacturer out of dozens in the market), had at least nine mobile devices as of 2012, representing six different heights.^{41,42,43}

Model	Release date	Height
iPhone 3GS	2009	4.5 in.
iPhone 4	2010	4.5 in.
iPhone 4s	2011	4.5 in.
iPhone 5	2012	4.87 in.
iPad 1	2010	9.55 in.
iPad 2	2011	9.49 in.
iPad 3	2012	9.49 in.
iPad mini	2012	7.87 in.
iPad 4 mini	2012	8.00 in.

⁴¹ *All Apple iPad versions compared*, SOCIALCOMPARE.COM (last updated Apr. 26, 2020), <http://socialcompare.com/en/comparison/apple-ipad-versions-compared-ipad-air-vs-ipad-mini> (last visited Feb. 20, 2023).

⁴² Todd Haselton, *Here’s every iPhone released, in order, and what changed along the way*, CNBC.COM (Jun. 29, 2017), <https://www.cnbc.com/2017/06/29/every-iphone-released-in-order.html> (last visited Feb. 20, 2023).

⁴³ *List of iPads*, THEIPHONEWIKI.COM (last updated Sept. 21, 2021), https://www.theiphonewiki.com/wiki/List_of_iPads (last visited Feb. 20, 2023).

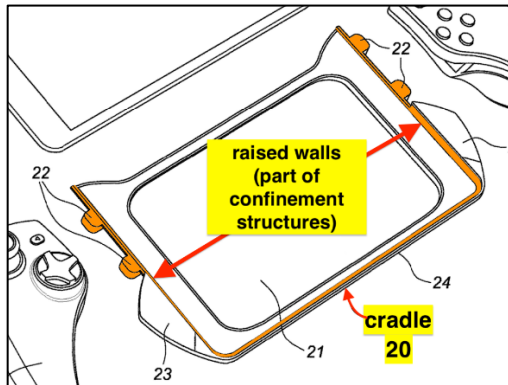
328. Because of this large variety of the sizes of mobile devices, Kessler’s adjustable bridge would have enhanced Schoenith’s controller. Kessler taught that the adjustable bridge “provides the advantage that the controller or handheld apparatus ... can be used with a range of different sized handheld information processing devices such as smart phones.” Kessler (Ex. 1006) at ¶¶ 17–18. A POSITA would have recognized that Kessler’s adjustable bridge would have greatly expanded the number of devices that Schoenith’s controller could support, leading to the predictable result of having a larger base of potential customers. While Schoenith recognized the possibility of using its controller with mobile devices having different sizes (Schoenith (Ex. 1005) at 4:36–39), that would have required different sizes of cradles for each mobile device having a different size. Kessler’s bridge was a known way of resolving that issue, while eliminating the need to buy a new cradle for each different device, providing the consumer benefits of convenience and cost savings.

329. The adjustable bridge of Kessler would have been compatible with Schoenith’s controller because both references describe devices that are designed to provide two side controllers via a bridge that connects two confining structures, which in turn hold a smartphone or tablet. From an engineering standpoint, a POSITA would have recognized that removing the “structural bridge” of Schoenith (made up of the main body of cradle 20) and replacing it with the adjustable

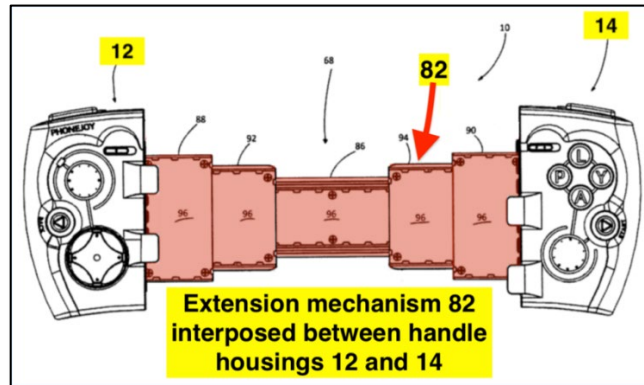
structural bridge of Kessler, while maintaining Schoenith's confinement structures, would have improved Schoenith's controller. Retaining the raised walls would have allowed Schoenith's device to securely hold and confine the mobile device, even with an adjustable bridge. Schoenith (Ex. 1005) at 6:30–43 (describing that the raised walls provide for “secure accommodation of a smart device.”). Given the technical similarity of the devices disclosed in the two references, this modification would have been low risk, yielding the predictable result of adding an adjustable mobile device cradle capable of receiving mobile devices of many different sizes.

330. As noted above in ¶¶ 134-135, the products Schoenith and Kessler disclose also fall within the same category of products – *associated controller accessories for handheld gaming computing devices*. For this reason too, a POSITA would have been motivated to apply the teachings of Kessler to Schoenith as it is an example of improving a similar device. Also, as discussed in ¶¶ 136–139 above, Schoenith and Park were both addressing the same general market need. Therefore, a POSITA would have been motivated to combine Kessler and Schoenith because that would have applied a known technique (Kessler's adjustable bridge) to a known device (in the same market segment) in the same market category to yield a predictable result (a device compatible with differently sized mobile devices).

331. Schoenith's Figure 3 below on the left shows the Schoenith cradle 20 and its raised walls, while Kessler's Figure 9 on the right shows the extension mechanism 82.

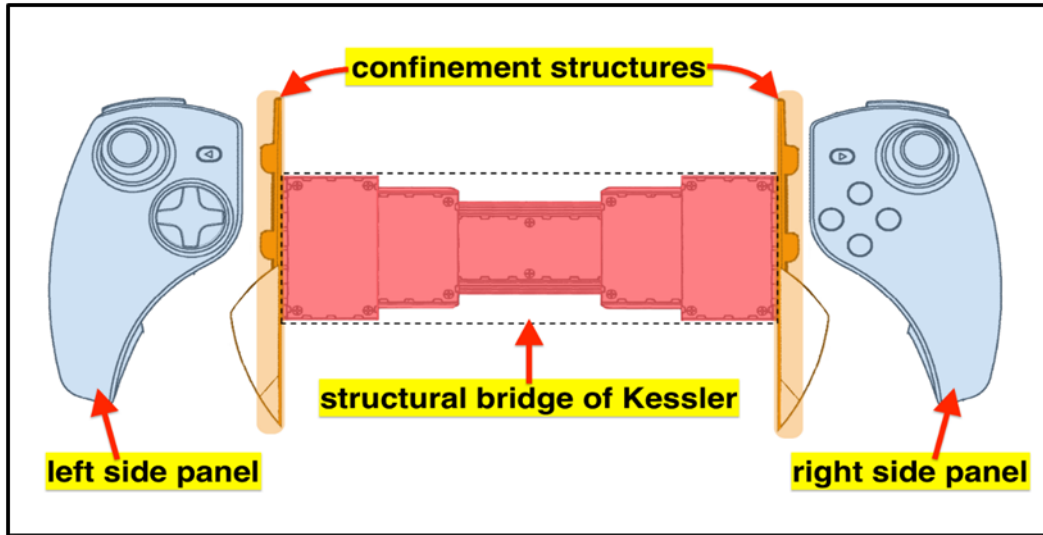


Schoenith Fig. 3 showing cradle 20 and raised walls of confinement structures (annotated)



Kessler Fig. 10 showing structural bridge – extension mechanism 82 (annotated)

332. The figure below shows one potential combination of Schoenith and Kessler, with Kessler's adjustable bridge inserted between and attached to Schoenith's raised walls, which then attach to left and right game control modules. As noted above, attaching the bridge to the raised walls (confinement structures in the combination) brings those walls together to create gripping force on a smart device. Kessler (Ex. 1006) at ¶ 101.



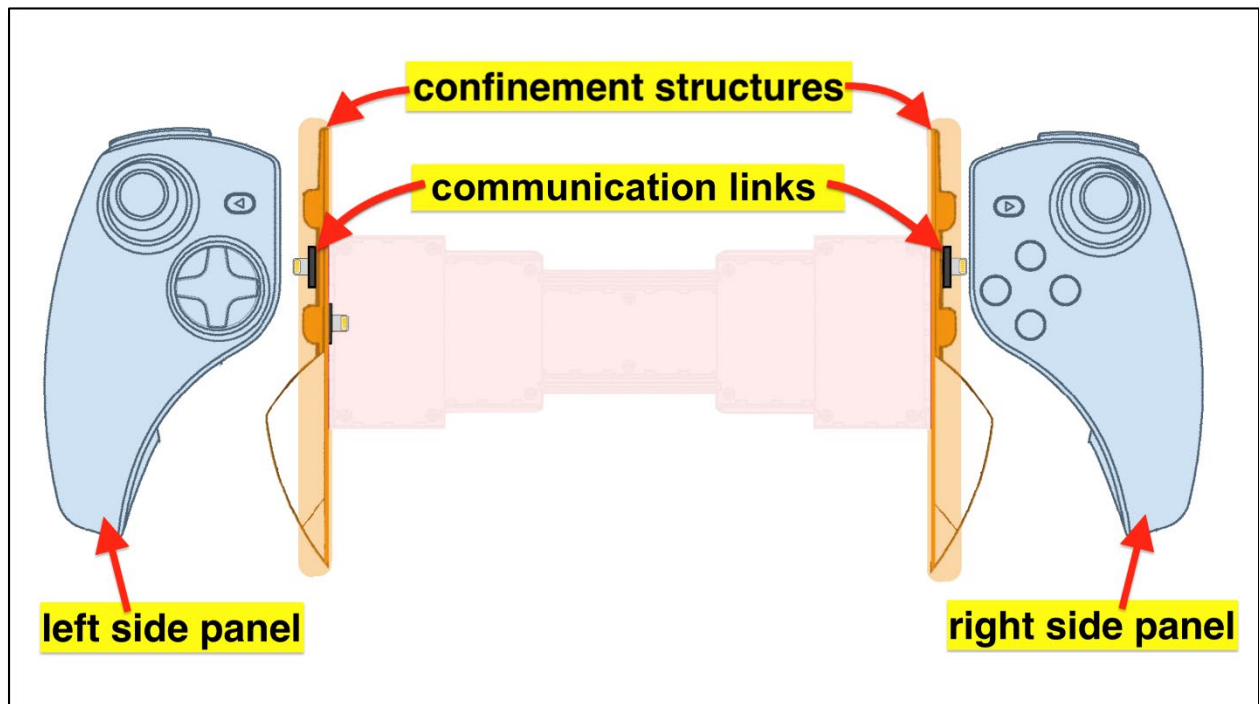
Potential combination of Schoenith and Kessler
utilizing Kessler's adjustable bridge

333. Additionally, as I explain below at ¶¶ 335–347 regarding limitation 1[b][2][a], [b], the right and left cradle walls in the combination of Schoenith and Kessler would be provided with “communication links,” including wired “power connector[s]” like that disclosed in Schoenith (e.g., “a 30-pin dock connector or Apply Lightning® connector”). Schoenith (Ex. 1005) at 7:42–48. These connectors would provide data between left and right panels and smart device 30, and thus the left and right cradle wall would electrically interact with the computing device.

334. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

- d. 1[b][2][a]: *each of the pair of confinement structures comprising a communication link,*

335. The combination of Schoenith and Kessler described above includes the raised wall 24 of Schoenith as confinement structures. The figure below shows the confinement structures, highlighted in orange.



Potential combination of Schoenith and Kessler

336. Schoenith disclosed that its cradle and raised walls may include wired and wireless communication links. Schoenith (Ex. 1005) at 7:35–48 (“**For example, the controller may include at least one wireless connection, such as Bluetooth® or infrared light- emitting diodes (LEDs) for exchanging data between the smart device and the controller in the right side panel, left side panel, the chassis, the cradle, or a combination thereof** The controller may include at

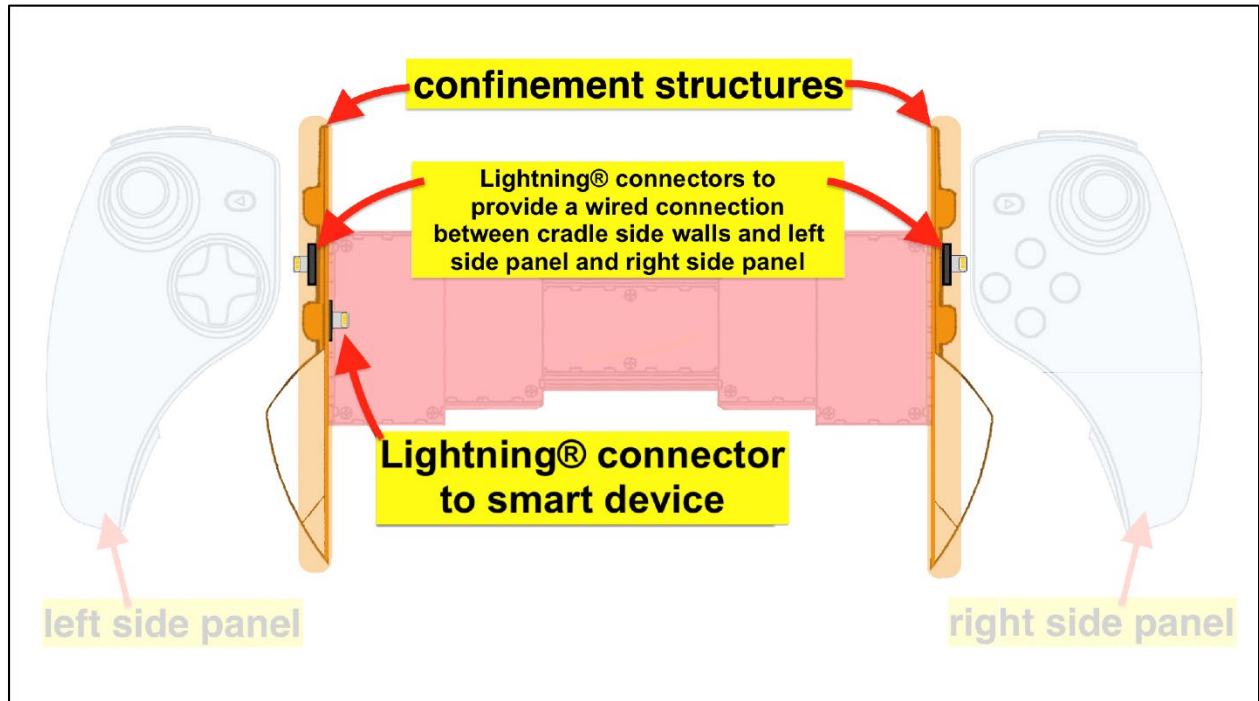
least one power connector to provide a **wired connection between the smart device and the controller in the right side panel, left side panel, the cradle, or a combination thereof**. The at least one power connector may be any connector typically utilized to connect a smart device to a host device, such as a 30-pin dock connector or **Apple Lightning® connector.**” (emphasis added)).

337. For wired connections, Schoenith discloses that the “connector” was for “power” and was also “utilized to connect a smart device to a host device.” Schoenith (Ex. 1005) at 7:42–48. A POSITA would thus have understood this disclosure to teach a wired “connector” (*e.g.*, Lightning® connector) providing both power and communication of data. Because such connectors are a component for reception and transmission of data, the connectors are a “communication link” as recited.

338. Schoenith also disclosed that one or more connections (and connectors) would be part of the cradle, part of the control panel 3 and 4, and part of the smart device 30. Schoenith (Ex. 1005) at 7:35–48 (“at least one power connector”). A POSITA would thus have understood that Schoenith’s cradle provided for wired connections between (1) the cradle and each of the control panels; and (2) the cradle and the smart device. As illustrated below, in the combination of Schoenith and Kessler, a POSITA would have been motivated to include Lightning® connectors on each side wall going to each respective panel to

accomplish Schoenith’s disclosure that the connectors could be used to “provide a wired connection between the smart device and the controller in the right side panel [and] the left side panel.” Schoenith (Ex. 1005) at 7:42–45.

339. The image below shows an example of the combination of Schoenith and Park where wired connections are provided between the panels and the raised walls, and between one raised wall and the smart device. In this example, Lightning® connectors are located in the raised walls and provide a wired connection to the left and right side panels, and another Lightning® connector is located on the inside of one of the raised walls providing a wired connection to the smart device.



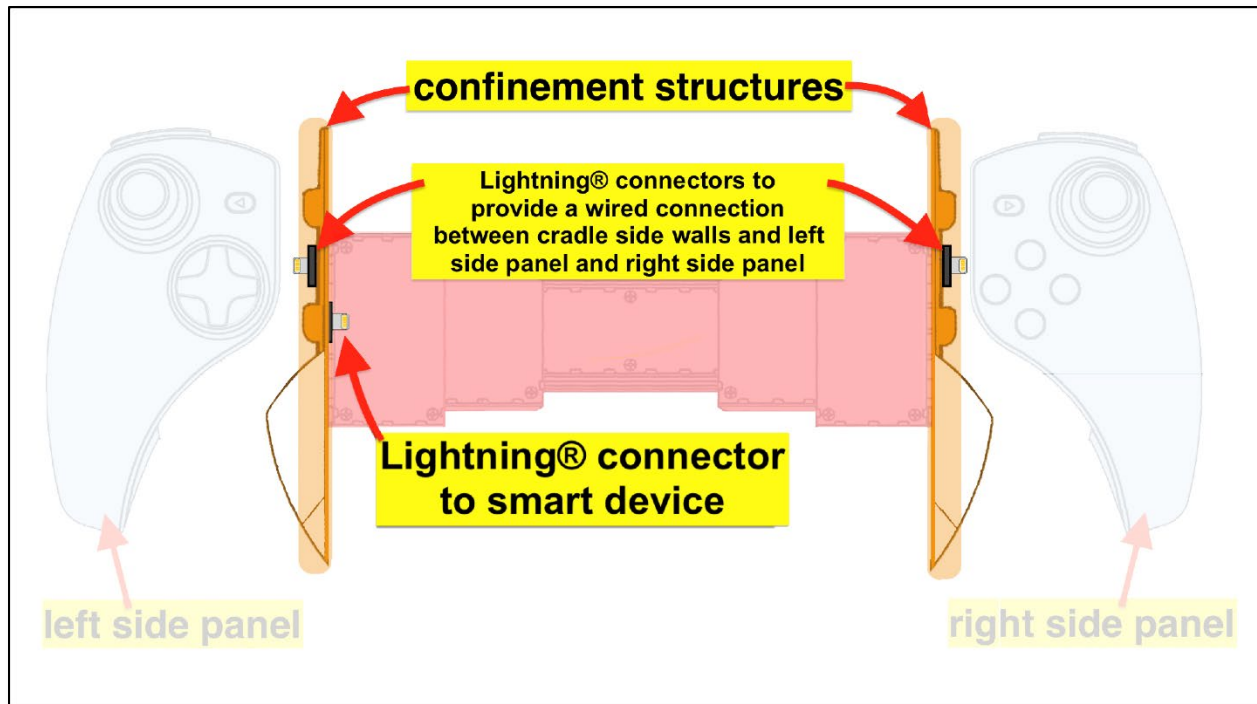
Potential combination of Schoenith and Kessler

340. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

- e. 1[b][2][b]: *each of the communication links configured for electronic communication with the computing device;*

341. As described above at ¶¶ 335–340, a POSITA would have understood that, to accomplish Schoenith’s disclosure that connectors could be used to “provide a wired connection between the smart device and the controller in the right side panel [and] the left side panel,” wired connectors (Lightning® connectors) would exist in one or both of the raised walls to connect the control panels to the raised walls, and to connect one or more of the raised walls to the smart device. In the combination of Schoenith and Kessler, the connectors allow communication between the control panels and the cradle’s raised walls, and between the cradle’s raised walls and the smart device 30. Schoenith (Ex. 1005) at 7:35–48.

342. Additionally, as shown below, if the connector to smart device 30 is on the inside of one raised wall, the panel corresponding to that wall communicates with the smart device 30, for example, by sending signals to a “power connector” on the outside of the raised wall, which are, in turn, sent to the connector going to the smart device.



Potential combination of Schoenith and Kessler

343. A POSITA would also have understood that in this embodiment, the panel on the other side is configured to send signals through a connector on the outside of the raised wall adjacent it (that lacks a connector to the smart device) and through a circuit in Kessler’s bridge (see ¶¶ 351–354 below regarding limitation 1[c][2][a]) to the raised wall on the other side of the combination for transmission through the device connector to the smart device 30. The specification describes a similar configuration where an “interface feature 338” is provided as part of a confinement structure and allows wired communication with a computing device. ’393 patent (Ex. 1001) at 10:21–29, 10:35–39, Figs. 18–19.

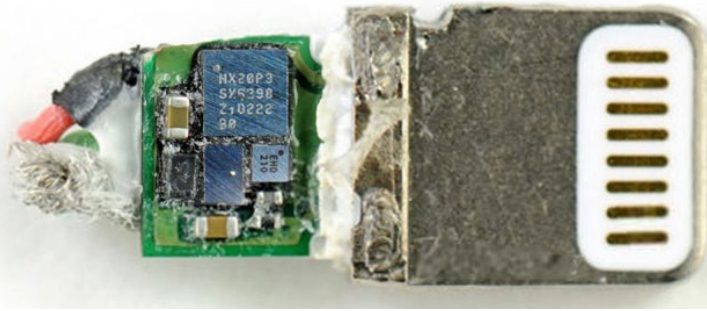
344. In the combination of Schoenith and Kessler, each of the communication links (Lightning® connectors) in the confinement structures

(Schoenith’s raised side walls) would thus have been configured for communication with the computing device (smart device 30).

345. Schoenith also disclosed that its communication links were configured for “electronic” communication (“the flow of information between two components represented by the use of electricity controlled by and/or mediated through an electron device, such as a vacuum, gas, transistor, or semiconductor”) with the computing device. Schoenith disclosed that Lightning® connectors may be used to communicate data from the control panels to cradle’s raised walls, and from the cradle’s raised walls to the smart device. Schoenith (Ex. 1005) at 7:42–48. A Lightning® connector, such as the one from 2012 shown below,⁴⁴ has numerous electron devices, including four chips, two of which are a TI BQ2025 (which has about 5K of logic gates) and a NXP NX20P3 (an integrated circuit).⁴⁵

⁴⁴ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

⁴⁵ *Apple’s Lightning Cable for iPhone 5 has a ‘mystery chip’*, PCMAG.COM (Oct. 16, 2012), <https://www.pcmag.com/archive/apples-lightning-cable-for-iphone-5-has-a-mystery-chip-303974> (last visited March 2, 2023).



346. This Lightning® connector has these components, in part because it “features fewer direct connections than the prior generation connector,” and “needs to apply some intelligence” as to what is being sent and received.⁴⁶ The connector also provides a “handshake” application and “some modest security.”⁴⁷ A POSITA would therefore have understood that, unlike a plain wire or ribbon connector, the circuitry within the Lightning® connector controls and/or mediates, in several respects, the “flow of information between two components [i.e., Schoenith’s control panels and smart device 30] represented by the use of electricity.”

347. Therefore, the combination of Schoenith and Kessler rendered this

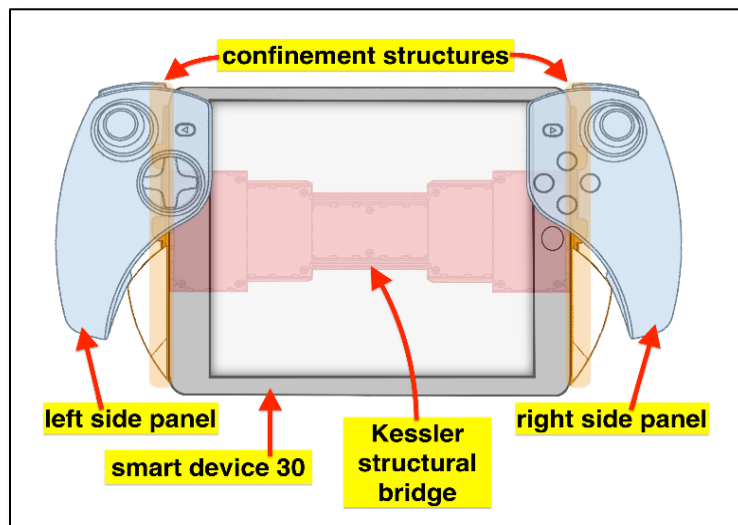
⁴⁶ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

⁴⁷ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

claim limitation obvious.

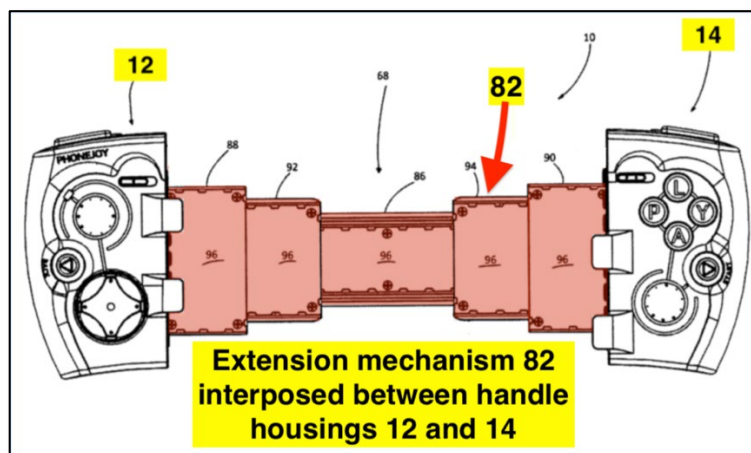
- f. 1[c][1]: *a rigid structural bridge disposed between and secured to the pair of confinement structures,*

348. The combination of Schoenith and Kessler rendered this claim limitation obvious. As discussed above in ¶¶ 325–347 regarding limitation 1[b][1] and 1[b][2][a], [b], a POSITA would have been motivated to combine Kessler’s teaching of an adjustable structural bridge with Schoenith’s cradle, and in doing so would have maintained Schoenith’s side walls, including “power connector[s]” (e.g., Lightning® connectors), as confinement structures. In this arrangement, the structural bridge would be between the confinement structures and would be attached to (secured to) the confinement structures, as shown in the figure below. As such, the structural bridge would be a physical apparatus that secures the confinement structure to each other across a distance.



Potential combination of Schoenith and Kessler
with smart device 30 installed

349. Additionally, Kessler’s adjustable bridge is a rigid structure. Kessler disclosed an adjustable structural bridge in the form of the extension mechanism 82, which is disposed between said first and second electronic game control modules, in the form of the left and right handle housings 12 and 14. Kessler (Ex. 1006) at Fig. 10, ¶ 82. The structural bridge secured the pair of control modules (left and right handle housings 12 and 14) one to the other. The extension mechanism 82 of Kessler “comprises a telescoping slide mechanism 84.” Kessler (Ex. 1006) at ¶ 85. Kessler further disclosed that the slide mechanism 84 (and therefore the structural bridge, in the form of extension mechanism 82) is rigid: “Each section of the slide mechanism 84 comprises a section of generally rectangular cross-section **which greatly enhances the strength and rigidity of the mechanism 84.**” Kessler (Ex. 1006) at ¶ 89 (emphasis added). Figure 10 below shows the extension mechanism 82 and handle housing 12 and 14.



Kessler Fig. 10 (annotated)

350. Therefore, Schoenith in combination with Kessler rendered this claim

limitation obvious.

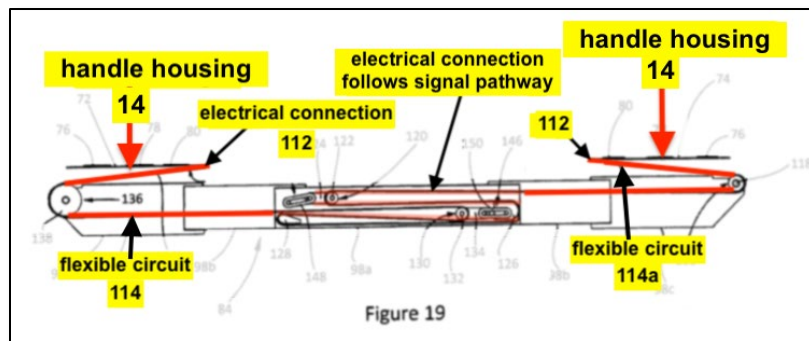
- g. 1[c][2][a]: *the rigid structural bridge comprising a passageway between the pair of confinement structures,*

351. As described above in ¶¶ 348–350, the combination would have included Kessler’s adjustable structural bridge. Kessler taught a structural bridge in the form of the extension mechanism 82, which includes an electrical connection means 112, comprising a flexible circuit 114, that connects the control housings, in the form of handle housings 12 and 14. Kessler (Ex. 1006) at ¶ 92 (“The respective control circuitries 72, 74 of the handle housings 12, 14 are electrically connected by an electrical connection means 112. **The electrical connection means 112 is preferably arranged to pass through the interior of the extension mechanism 82.**” (emphasis added)). Kessler (Ex. 1006) at ¶¶ 93, 104. Kessler goes on to state that: “Using the extension mechanism **as a form of conduit for the electrical connection means not only provides some protection for said electrical connection,** but also saves space.” Kessler (Ex. 1006) at ¶¶ 27, 93 (emphasis added). The connection means 112 thus contained a conduit (passageway) that runs through the extension mechanism 82. Kessler’s extension mechanism is therefore a passageway (“a space that accommodates a wire”).

352. In the combination of Schoenith and Kessler, the conduit in the bridge would connect the two sets of raised walls and provided an electrical connection between Schoenith’s game control modules (panels 3 and 4), as well as

communication between each of those panels and the computing device (smart device 30) through wired connections (communication links) in the raised cradle walls, as described above in ¶¶ 341-347.

353. Figure 19 of Kessler below shows the electrical connection 112 traveling through the conduit (passageway) of the structural bridge. As shown in Figure 19, the connection takes the form of flexible circuit 114. Kessler (Ex. 1006) at ¶¶ 93, 104.



Kessler Fig. 19 (annotated)

354. The combination of Schoenith and Park thus rendered obvious a rigid structural bridge comprising a passageway between the pair of confinement structures.

- h. 1[c][2][b]: *the passageway promotes electrical communication between the communication link of a first confinement structure of the pair of confinement structures and the computing device, the passageway further promotes electrical communication between the communication link of a second confinement structure of the pair of confinement structures and the computing device; and*

355. As described above in ¶¶ 325–347 regarding limitations 1[b][1] and 1[b][2][a], [b], the combination of Schoenith and Kessler taught “confinement structures which comprise communication links configured for communication with the computing device.” As described above at in ¶¶ 351–354 regarding limitation 1[c][2][a], the combination of Schoenith and Kessler taught a “rigid structural bridge comprising a passageway between the pair of confinement structures.”

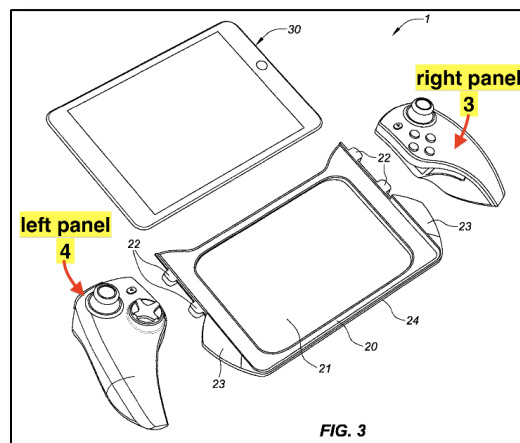
356. Regarding the passageway promoting electrical communication between the confinement structures and the computing device, the combination of Schoenith and Kessler rendered this feature obvious. Kessler disclosed that “[a]t least one of said **left handle housing and said right handle housing comprises a communication module for communicating control signals** generated by the processor **to said handheld information processing device** received in the defined space.” Kessler (Ex. 1006) at ¶ 12 (emphasis added). Kessler also stated that: “Using the extension mechanism **as a form of conduit for the electrical connection means not only provides some protection for said electrical**

connection, but also saves space.” Kessler (Ex. 1006) at ¶¶ 27, 93 (emphasis added). Kessler’s conduit (passageway) thus protects the electrical connection between the game controllers (left and right panels), and therefore promotes electrical communication (“the flow of information between two components represented by the use of electricity”) between each of those controllers, between their related sides walls (including Lightning® connectors), and between the controllers a computing device (through another Lightning® connector to the smart device).

357. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

i. 1[d][1]: *a pair of electronic game control modules,*

358. Schoenith disclosed a pair of electronic game control modules, in the form of right panel 3 and left panel 4, as shown below. Schoenith described these panels as “game controllers.” Schoenith (Ex. 1005) at 1:6–8, 5:45–50.

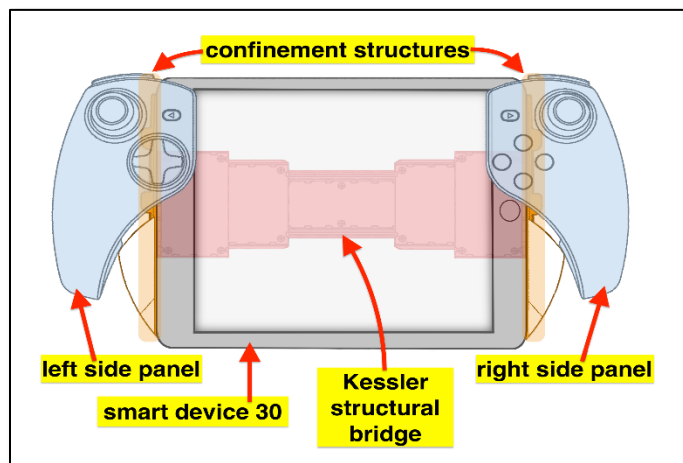


Schoenith Fig. 3 (annotated)

359. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

- j. 1[d][2]: *each electronic game control module of the pair of electronic game control modules is secured to and interacts with a corresponding confinement structure of the pair of confinement structures,*

360. The combination of Schoenith and Park included electronic game control modules, Schoenith's right and left panels 3 and 4, which are secured to and interact with corresponding confinement structures, and Schoenith's left and right raised cradle walls 24. These structures are shown in the figure below.



**Potential combination of Schoenith and Kessler
with game control modules secured to confinement structures**

361. The left and right panels can be attached to the cradle 20 with “connection parts.” Schoenith (Ex. 1005) at 2:28–32 (“The smart device may be inserted into the depression portion of the cradle so that the cradle can support the smart device, and wherein **the cradle with the smart device is attached to the right side panel and the left side panel.**” (emphasis added)), 7:14–29 (“**The**

cradle may be attached to the right side panel on the right side and the left side panel on the left side. ... The connection can be any connection commonly utilized in controllers, preferably a connection which allows for easy and frequent assembly and disassembly of the controller, such as a magnetic connection, a snap-fit connection, mechanical keys, a combination thereof, or the like.” (emphasis added)). One potential connection is a “magnetic connection” where magnets of opposing polarity in the panels and raised walls create a connection based on complementary magnetic forces. In that example, the panels and raised walls interact by means of attractive magnetic forces.

362. Additionally, as described above at ¶¶ 335–347 regarding limitation 1[b][2][a], [b], Schoenith disclosed that its device could include “power connectors” in the cradle. The “connectors” were for “power” and were also “utilized to connect a smart device to a host device.” Schoenith (Ex. 1005) at 7:42–48 (“The controller **may include at least one power connector to provide a wired connection between the smart device and the controller in the right side panel, left side panel, the cradle, or a combination thereof. The at least one power connector may be any connector typically utilized to connect a smart device to a host device, such as a 30-pin dock connector or Apple Lightning® connector.**” (emphasis added)). A POSITA would have understood this disclosure to teach that a wired “connector” (e.g., Lightning® connector) would provide both

power and communication of data. A POSITA would also have understood that the wired connections Schoenith disclosed could exist in one or both of the raised walls 24 to connect to the control panels (and to the smart device). In this arrangement, the electronic game control modules would electrically interact with the communication links (Lightning® connectors) of the confinement structures (raised side walls).

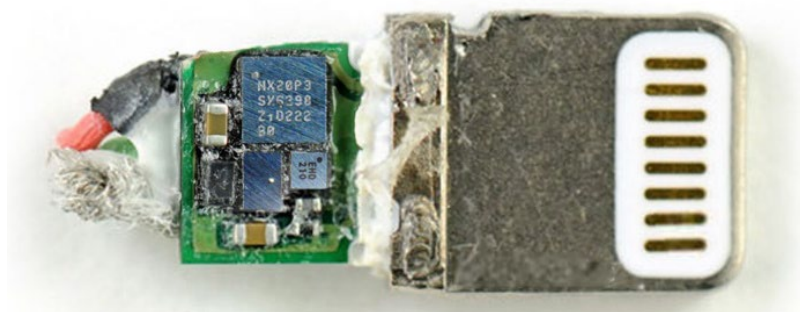
363. The combination of Schoenith and Kessler thus rendered this claim limitation obvious.

- k. 1[d][3]: *each electronic game control module in electronic communication with the communication link of its corresponding confinement structure,*

364. As discussed above at ¶¶ 360–363 regarding limitation 1[d][2], Schoenith disclosed that each of its electronic game control modules (left and right side panels 3 and 4) can be in communication with the communication link of a corresponding confinement structure, raised walls 24 in cradle 20, through “power connectors” (e.g., Lightning Connectors). Schoenith (Ex. 1005) at 7:42–48.

365. As discussed above at ¶¶ 341–347 regarding limitation 1[b][2][b], the Lightning Connectors disclosed by Schoenith contains numerous electron devices, including four chips, two of which are a TI BQ2025 (which has about 5K of logic

gates) and a NXP NX20P3 (an integrated circuit).⁴⁸.



366. The Lightning Connector has these components, in part because it “features fewer direct connections than the prior generation connector,” and “needs to apply some intelligence” as to what is being sent and received.⁴⁹ The connector also provides a “handshake” application and “some modest security.”⁵⁰ A POSITA would therefore have understood that, unlike a plain wire or ribbon connector, the

⁴⁸ *Apple’s Lightning Cable for iPhone 5 has a ‘mystery chip’*, PCMAG.COM (Oct. 16, 2012), <https://www.pcmag.com/archive/apples-lightning-cable-for-iphone-5-has-a-mystery-chip-303974> (last visited March 2, 2023).

⁴⁹ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

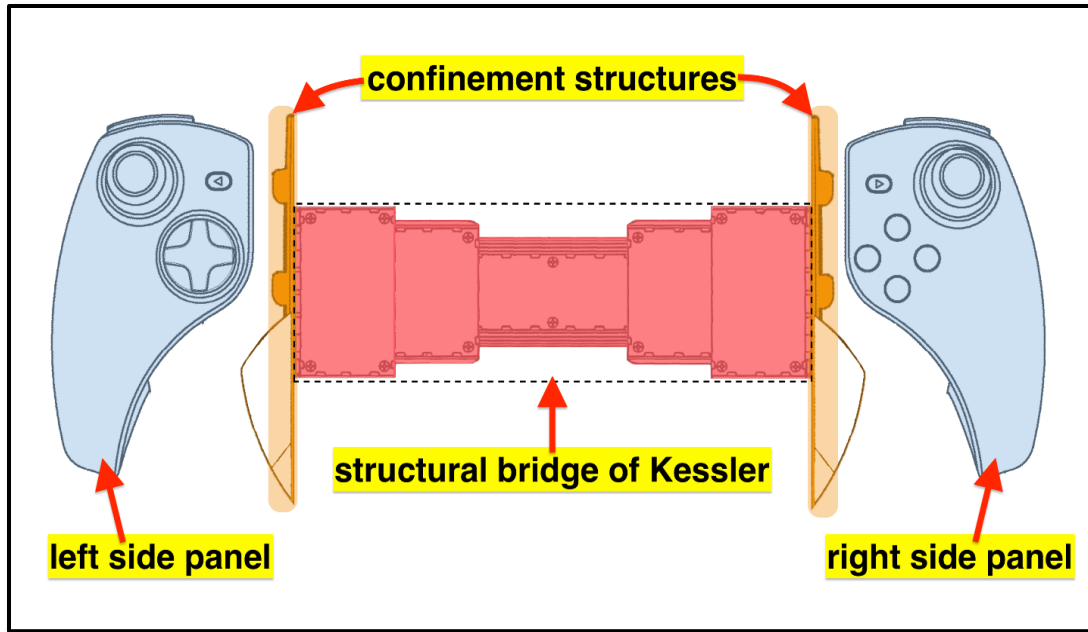
⁵⁰ *Apple Lighting Cable Teardown*, TECHINSIGHTS.COM (Oct. 15, 2012), <https://www.techinsights.com/blog/apple-lightning-cable-teardown> (last visited March 2, 2023).

circuitry within the Lightning® connector controls and/or mediates, in several respects, the “flow of information between two components represented by the use of electricity.”

367. The combination of Schoenith and Kessler rendered this claim limitation obvious.

- I. 1[d][4]: *wherein each electronic game control module is a separate and distinct structure from each of their corresponding confinement structures, forming no structural portion of their corresponding confinement structures, and*

368. Schoenith disclosed confinement structures comprised of the raised wall (lip) 24 of cradle 20. Schoenith also disclosed electronic game control modules (left and right side panels 3 and 4) that are detachable from and thus separate and distinct structures from each of the corresponding confinement structures, forming no structural portion of their corresponding confinement structures. Schoenith (Ex. 1005) at Fig. 3, 9:57–10:3. The combination of Schoenith and Kessler included the separate game control modules and confinement structures from Schoenith, as shown in the figure below.



Potential combination of Schoenith and Kessler

369. Therefore, the combination of Schoenith and Kessler rendered this claim limitation obvious.

- m. 1[d][5]: *in which each of the pair of confinement structures are separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge,*

370. As explained above in ¶¶ 348–354 regarding limitation 1[c][1], a POSITA would have been motivated to combine Kessler’s teaching of an adjustable structural bridge with Schoenith’s controller.

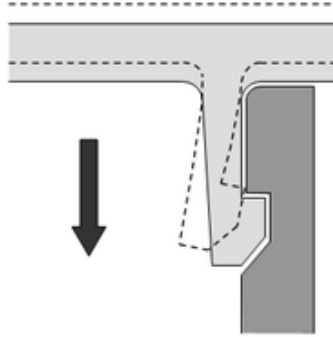
371. In engineering the combination as described, removing the central portion from Schoenith’s cradle would naturally result in the pair of confinement structures (raised walls including connectors) ending up as two separate and distinct structures. Kessler’s structural bridge is itself disclosed to be a separate and

distinct component from the reference's handle housings 12 and 14. Kessler (Ex. 1006) at Fig. 14, ¶ 83 ("In order to facilitate the variable spacing apart of the left and right handle housings 12, 14, the handle housings 12, 14 are physically interconnected by an extension mechanism 82"); Kessler (Ex. 1006) at Figs. 13, 15–18.

372. Incorporating Kessler's bridge into Schoenith's device would have resulted in a structural bridge that is separate and distinct from Schoenith's confinement structures. That is consistent with Kessler's teachings. In addition, whether to maintain the raised walls as a separate and distinct structure would have been a known design choice (*e.g.*, unitary molding, separate components attached via detachable connectors such as snap fit connectors, etc.). A POSITA would also have been motivated to incorporate Park's structural bridge as designed (*i.e.*, as a separate and distinct structure) because this would have been the use of known components, as originally designed to be used, to end up with a predictable result. As Kessler taught, the bridge is interconnected to the separate handle housings. Thus, in the combination of Schoenith and Kessler, Schoenith's raised walls (confinement structures) would be separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge.

373. For example, Schoenith's confinement structures could be firmly, but detachably connected to Kessler's adjustable bridge, using secure snap-fit

connectors, which were available the time of the filing of the '393 patent. The image below⁵¹ illustrates the operation of a snap-fit connector.



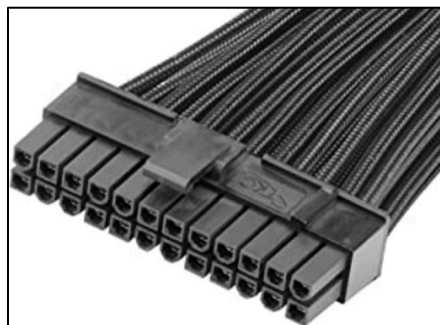
374. Examples of the use of such snap-fit connectors are shown below. Pictured immediately below is an adapter for a mobile computer⁵² which attaches to the device through snap-fit connectors.



⁵¹ https://commons.wikimedia.org/wiki/File:Cantilever_Snap-fit.PNG (last visited March 4, 2023).

⁵² <https://www.amazon.com/Intermec-850-567-001-Adapter-Mobile-Computer/dp/B004LORDRE> (last visited March 4, 2023).

375. Electronic connectors⁵³ often use snap-fit technology for a secure yet detachable connection.



376. The use of a such a connector would have provided several benefits, in addition to being a known design choice. As noted above, such connectors would have provided a secure connection and thus held the combination together and protected it from stresses encountered during normal gameplay and usage. Additionally, a detachable connection would have allowed for easier access to repair or replace components in the event of failure or malfunction. A detachable confinement structure would also have allowed the consumer to purchase adapters for different connection types, extending the useful life of the accessory product. A POSITA would therefore have been motivated to use such connectors in the combination of Schoenith and Kessler to connect the raised side walls to the structural bridge.

⁵³ <https://www.amazon.com/Motherboard-Power-Extension-Cable-Female/dp/B07F38ZSJW> (last visited March 4, 2023).

377. Additionally, I understand that Gamevice contends that components that are screwed together are separate and distinct components, forming no structural portion of the structural bridge, as recited. Ex. 1018 ('1197 Initial Determination) at 153 (“In the Nintendo Switch, **each of the pair of side rails are separate and distinct structures from the upper frame, forming no structural portion of the upper frame.** See CX-0001C at Q/A 483-484; CDX-0001C at 76. Nintendo’s manual identifies them as separate and distinct, they are made of different materials, they serve different functions, and **the screws attaching them together can be removed.**” (emphasis added)).

378. A POSITA would have understood that one known design choice for connecting Schoenith’s raised walls to Park’s adjustable bridge would have been to use screws. Screws are commonly used to affix components, one to another, in portable electronics. For example, in the iPhone 4, released in 2010, screws were used to attach the rear case to the front of the phone.⁵⁴ The screws were 0.8 mm long,⁵⁵ and were capable of fixedly attaching components within a device in a manner that uses only a small footprint. Even smaller screws were known and

⁵⁴ <https://www.ifixit.com/Teardown/iPhone+4+Teardown/3130> (last visited March 2, 2023).

⁵⁵ <https://www.adafruit.com/product/892> (last visited March 2, 2023).

commercially available. Numerous other components within the iPhone 4 were also connected to each other via screws.

379. The use of screws in portable electronics was common, and a POSITA would have been motivated to use such screws to connect Schoenith's raised walls and Kessler's adjustable bridge, including to allow for replacement or repair, in the case of damage or malfunction to the raised walls or the connectors in the raised walls. Indeed, the iPhone 4 used screws in the manner it did to allow for servicing the interior components of the device.

380. Additionally, the embodiments in Figures 14–26 of '393 patent, which are pertinent to the challenged claims, disclose only the following connections between the “structural bridge 322” and “confinement structures 316”: “The structural bridge 322 is preferably secured to a select confinement structure of the pair of confinement structures 316 by way of solid connection 324, and to the remaining confinement structure of the pair of confinement structures 316 by way of a slip fit 316.” '393 patent (Ex. 1001) at 9:60–67. The '393 patent thus not only discloses that “separate and distinct” confinement structures can be connected to the structural bridge by a detachable connection, but it also discloses that the connection can be “solid.” A POSITA would have understood that one form of a solid connection would be to screw the components together.

381. Therefore, the combination of Willner and Park rendered this claim limitation obvious.

2. Claim 2: *The combination of claim 1, in which the rigid structural bridge supports electronics associated with the computing device.*

382. As described above in ¶¶ 325–334 and ¶¶ 348–350 regarding limitation 1[b][1] and 1[c][1], a POSITA would have incorporated Kessler’s rigid, adjustable structural bridge in Schoenith’s device. Claim 2 also recites that the structural bridge supports electronics associated with the computing device. Kessler taught that its bridge is “adapted to support” a mobile device that is placed on the bridge. Kessler (Ex. 1006) at ¶¶ 42, 106. Kessler’s bridge would still perform that support function in the combination of Schoenith and Kessler, supporting not only a smart device, but also any electronics within that device, such as CPUs, display drivers, communication chips or modules, memory chips, and the like.

383. Schoenith disclosed “a smart device, such as iPhone®, iPad®, iPad Mini, or the like,” Schoenith (Ex. 1005) at 6:15–19, which a POSITA would have understood contains a CPU and electronics under the control of the CPU. In the combination of Schoenith and Park, this smart device is placed on Kessler’s bridge, and thus the device and its associated electronics are supported by Kessler’s bridge, as described above.

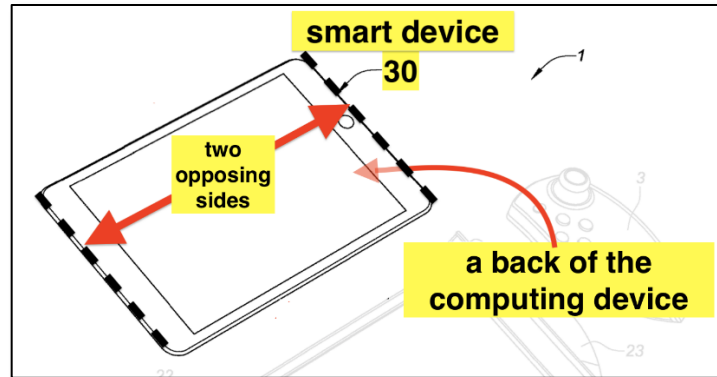
384. Therefore, the combination of Schoenith and Kessler rendered this claim obvious.

3. **Claim 3:** *The combination of claim 2, in which the computing device further comprising a back, the back provides an internal surface, an external surface and cooperates with the at least two opposing sides of the computing device.*

385. Schoenith disclosed a computing device in the form of smart device 30: “The cradle serves as **a support** for a smart device[.]...**such as iPhone®, iPad®, iPad Mini,** or the like.” Schoenith (Ex. 1005) at 6:15–19 (emphasis added).

386. A device such as an iPhone, iPad, and iPad Mini has a back with both an internal and external surface. The external surface is the side that faces the user when looking at the back of the device. The internal surface is the side that faces the components inside the device, such as CPUs, display drivers, communication chips or modules, memory chips, and the like. Having a back with internal and external surfaces allows the device to have space within its housing to contain electronics.

387. The figure below shows the location of the external side of the back of smart device 30, as well as the two opposing sides of the device.



Schoenith Fig. 4 (modified for clarity and annotated)

388. The back of the computing device also cooperated with (worked with) the two opposing sides to form the completed device housing.

389. Therefore, the combination of Schoenith and Kessler rendered this claim obvious.

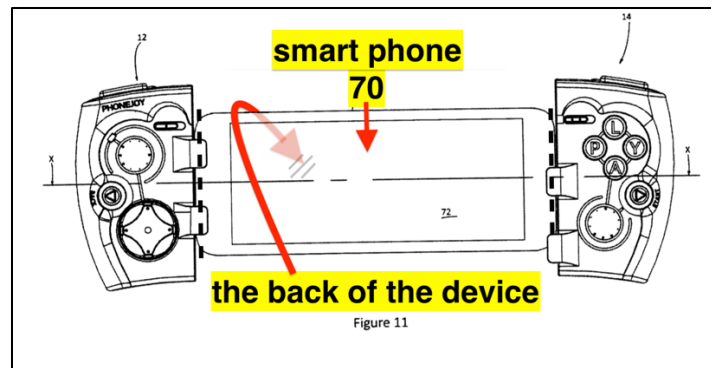
4. Claim 4: *The combination of claim 3, in which the rigid structural bridge cooperates with the back of the computing device.*

390. As described above in ¶¶ 325–334 and ¶¶ 348–350 regarding limitation 1[b][1] and 1[c][1], a POSITA would have incorporated Kessler’s rigid, adjustable structural bridge in Schoenith’s device.

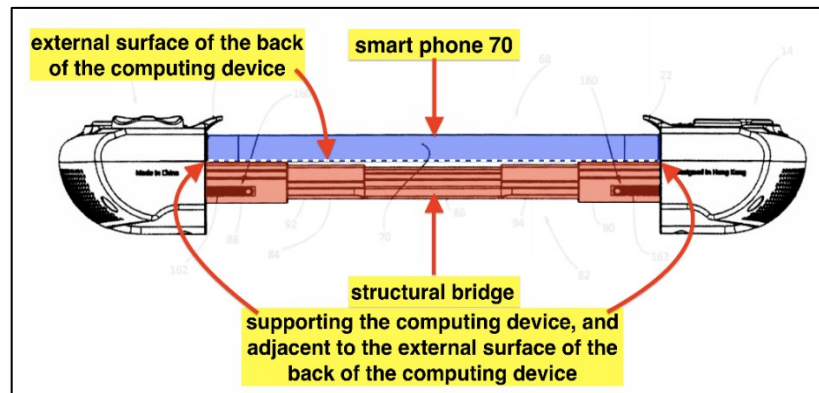
391. Kessler’s structural bridge cooperated with (worked with) the back of the computing device. Kessler’s structural bridge, in the form of extension mechanism 82, secured game controllers one to the other while supporting the computing device. Kessler disclosed that the structural bridge, also referred to as the interconnection device, supports the computing device. Kessler (Ex. 1006) at ¶¶ 42, 106 (“The interconnection device may be adapted to **support a handheld**

information processing device thereupon within the defined space.”) (emphasis added).

392. Figures 11 and 12 below show a mobile device with its back resting against the surface of the extension mechanism 82. Figure 12 also shows the bridge supporting, and therefore working together with, the back of a mobile device.



Kessler Fig. 11 (annotated)



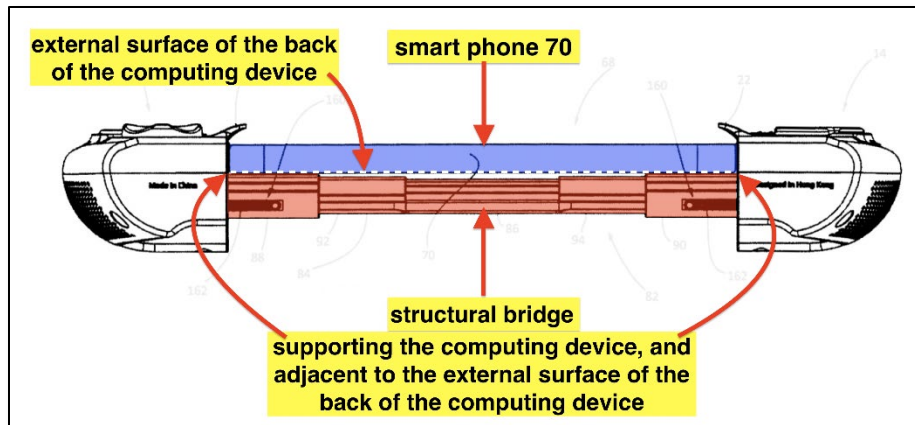
Kessler Fig. 12 (annotated)

393. As part of the Schoenith’s device, Kessler’s adjustable bridge would have performed the same function of supporting the back of any smart device 30 used with the game controllers.

394. Therefore, the combination of Schoenith and Kessler rendered this claim obvious.

5. **Claim 5:** *The combination of claim 4, in which the rigid structural bridge cooperating with the back of the computing device is adjacent to the external surface of the back of the computing device.*

395. As described above in ¶¶ 390–395 regarding claim 4, the combination of Schoenith and Kessler rendered obvious a rigid structural bridge cooperating with the back of a computing device. When a smart device is inserted on top of Kessler’s structural bridge in the combination, the structural bridge is adjacent (nearby but not necessarily next to) the back of the device. This is reflected in Kessler’s Figure 12 below, which shows the structural bridge, extension mechanism 82, supporting the external surface of the back of a computing device, smart phone 70. Kessler disclosed that the bridge, also known as the interconnection device, supports the smart phone. Kessler (Ex. 1006) ¶¶ 42, 106 (“The interconnection device may be adapted to support a handheld information processing device thereupon within the defined space.”). Kessler’s bridge would have provided the same support in the combination of Schoenith and Kessler.

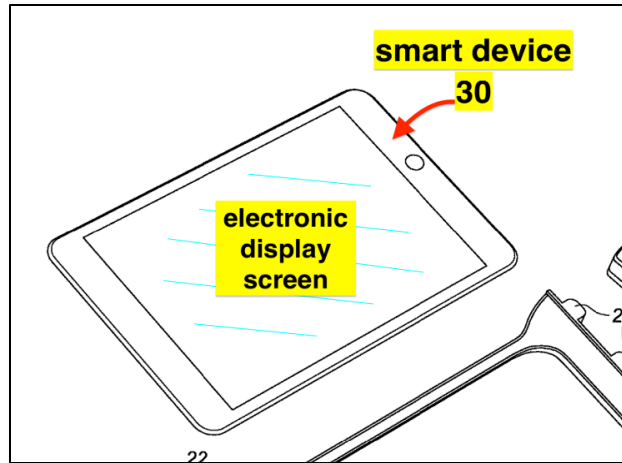


Kessler Fig. 12 (annotated)

396. Therefore, the combination of Schoenith and Kessler rendered this claim obvious.

6. **Claim 6:** *The combination of claim 4, in which the computing device comprises an electronic display screen, and wherein at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link to the computing device, the signals passed to the computing device controlling images displayed on the electronic display screen of the computing device.*

397. Schoenith disclosed a computing device in the form of smart device 30 (iPhone, iPad, iPad Mini, etc.). As shown below, Schoenith discloses such a computing device has an electronic display screen.



Schoenith Fig. 3 (closeup, annotated)

398. As discussed above in ¶¶ 364–367 regarding limitation 1[d][3], Schoenith disclosed, and the combination of Schoenith and Kessler would have included, “each electronic game control module in electronic communication with the communication link of its corresponding confinement structure.” Therefore, the combination would also have included “at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link.” Further, as discussed above in ¶¶ 341–347 regarding limitation 1[b][2][b], Schoenith disclosed confinement structures comprising communication links configured for communication with the computing device, and these confinement structures would have been maintained in the combination of Schoenith and Kessler.

399. The combination of Schoenith and Kessler thus included Schoenith’s game control modules (panels 3, 4), communication links, and computing device

(smart device), and as explained below, in the combination, the signals that are passed from the game control modules through the communication links are further passed “to the computing device.”

400. More specifically, Schoenith disclosed that “the signals passed to the computing device control [] images displayed on the electronic display screen of the computing device.” Schoenith disclosed that the purpose of its controller is controlling game software running on the smart device 30. Schoenith (Ex. 1005) at 1:31–36 (“Touch screens also present additional challenges to game users in that the lack of a traditional **keyboard, joystick, or a controller** generally decreases a user’s ability to react with **sufficient comfort, ease, and speed to the demands of a game application.**” (emphasis added)), 1:41–45 (“As another example, **controlling a smart device software application, such as a game application,** by means of a touch screen may present a problem in that a user may block certain parts of the touch screen while engaging fingers on the touch screen.” (emphasis added)), 1:59–62, 2:6–16 (“Therefore, there remains a need for **a game controller accessory** for electronic smart devices that provides a user with enhanced ability to **utilize and enjoy the smart device application software by offering additional control options** besides the touch screen.” (emphasis added)), 2:60–3:5 (“The present teachings provide a controller that is specifically compatible and fit for one or more smart devices ...; therefore, the user is not limited to controlling the smart

device software application with touch screen only. In addition, the controller allows for enhanced enjoyment of the user's smart device **by enabling the user to utilize both hands in controlling the software applications** at the same time” (emphasis added)), 4:44–49 (“Preferably, the controller has an ergonomic shape so that **the controller accommodates one or more fingers** of a right hand and/or **one or more fingers of a left hand**, feels comfortable to the user, **reduces soreness and cramps after extended use**, and allows for 3-D motion enhanced gaming.” (emphasis added)), 5:45–55 (“The right side panel, the left side panel, the chassis, or a combination thereof may include one or more controls, such as **gaming controls, such as an analog stick, dual analog sticks, directional pad, arrow buttons, face action buttons, shoulder buttons**, start and select buttons, on and off buttons, **guide buttons, back buttons, central buttons, or the like**. The right side panel, the left side panel, the chassis, or a combination thereof may also include at least one specialized control, such as a steering wheel. The controls may be single or multi-functional, have a given function or be assigned a variety of functions.” (emphasis added)).

401. The functions assigned to the disclosed “gaming controls” (analog sticks, directional pads, and buttons) include functions for controlling images, such as characters or icons, displayed on the electronic display screen of the computing device. For example, the “directional pad” indicates the direction of movement

(up, down, left, or right) for a virtual object on the screen, like a game character. And the “steering wheel” indicates the direction for moving a vehicle in a game, such as a car racing game. Indeed, one of Schoenith’s purposes was to provide non-touch screen controls to “navigat[e] a game application” so that user would not “block certain parts of the touch screen” while controlling a game. Schoenith (Ex. 1005) at 1:36–47.

402. As a result, the combination of Schoenith and Kessler rendered this claim obvious.

7. **Claim 7:** *The combination of claim 2, in which the electronics supported by the rigid structural bridge is a communication module associated with the computing device.*

403. As discussed above in ¶¶ 382–384 regarding claim 2, Kessler’s rigid structural bridge supports smart device 30 in the combination of Schoenith and Kessler, including the electronics within the smart device 30. Schoenith further discloses that the smart device 30 includes electronics that comprise a communication module, such as “Bluetooth® or infrared light-emitting diodes.” Schoenith (Ex. 1005) at 7:42–48; Schoenith (Ex. 1005) at 7:34–41. As a result, Schoenith disclosed that the electronics supported by the rigid structural bridge include a communication module associated with the computing device.

404. The combination Schoenith and Kessler therefore rendered this claim obvious.

D. Anticipation and Obviousness Based on Hirschman

405. I understand that Gamevice accused the Nintendo Switch of infringing claims 1–4 and 6–7 before the International Trade Commission (ITC) in Investigation No. 337-TA-1197 (“the ’1197 Investigation”). I understand that, in that Investigation, Gamevice alleged the Nintendo Switch infringed these claims by contending that side rails on the Nintendo Switch constitute “confinement structures”; that a selection of electronic and non-electronic components within the Switch console comprise the recited “computing device” (including a circuit board having a CPU); that a flexible “printed circuit” (“FPC”) connected to each of the side rails constitutes the recited “communication links”; that the FPCs are in “electronic communication” with both the “computing device” and the Joy-Cons (which Gamevice contends are “electronic game control modules”) because data is sent over the wires of the FPCs; that the recited “structural bridge” for the Nintendo Switch is an “upper frame” assembly within the console itself; that a space on the upper frame assembly selected by Gamevice constitutes a “passageway” that “promotes electrical communication” between the side rails and the “computing device”; and that the side rails are separate and distinct structures from the upper frame assembly, forming no structural portion of the upper frame assembly, even though the side rails are screwed on to the upper frame assembly in multiple locations and are not intended to be removed. Ex. 1018 (’1197 ITC Initial

Determination) at 108–110 (computing device), 115–116 (confinement structures), 125 (“a flexible printed circuit [] is a ‘communication link’”), 130–131 (structural bridge), 134–135 (passageway), 153 (confinement structures separate and distinct from structural bridge).

406. I understand that the Administrative Law Judge in the ’1197 Investigation determined that claims 14 and 67 were not infringed by the Nintendo Switch, rejecting Gamevice’s apparent interpretation of these claims. *E.g.*, Ex. 1018 (’1197 ITC Initial Determination) at 120 (no confinement structures), 128–129 (no communication links / no electronic communication), 134 (no structural bridge), 143 (no passageway), 155–156 (alleged confinement structures are not separate and distinct from alleged structural bridge, as claim 1 recites). I understand that Gamevice petitioned the full Commission for review of the Initial Determination, but that the Commission declined to reverse the determination. Ex. 1019. I understand that the ITC’s determination is now final, as Gamevice voluntarily dismissed its appeal of the determination, which it made to the United States Court of Appeals for the Federal Circuit. Ex. 1020.

407. Notwithstanding this, I understand that Gamevice is asserting claims 1–4 and 6–7 against the Nintendo Switch in the Northern District of California case, under the same theories it asserted in the ITC. Ex. 1023 at 2 (“Specifically, the infringement contentions set forth in Gamevice’s expert reports submitted

during the ITC cases will be treated as initial infringement contentions under L. Pat. R. 3-1.”).

408. I understand that Nintendo does not agree with Gamevice’s understanding of the scope of the claims, as asserted in the ’1197 Investigation and in the Northern District of California case.

409. To the extent Gamevice’s understanding of the scope of claims 1–4 and 6–7 is adopted by Board, the following analysis shows that Hirschman anticipated or rendered obvious claims 1–4 and 6–7 of the ’393 patent under Gamevice’s understanding of the scope of the claims.

1. Claim 1:

a. Preamble: *A combination comprising:*

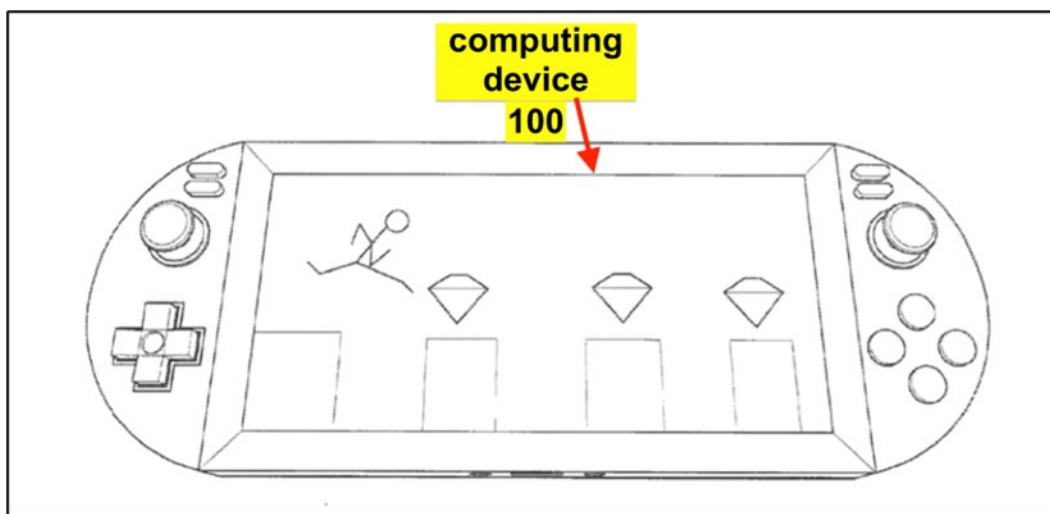
410. Hirschman is a combination of components as discussed below.

b. 1[a]: *a computing device.*

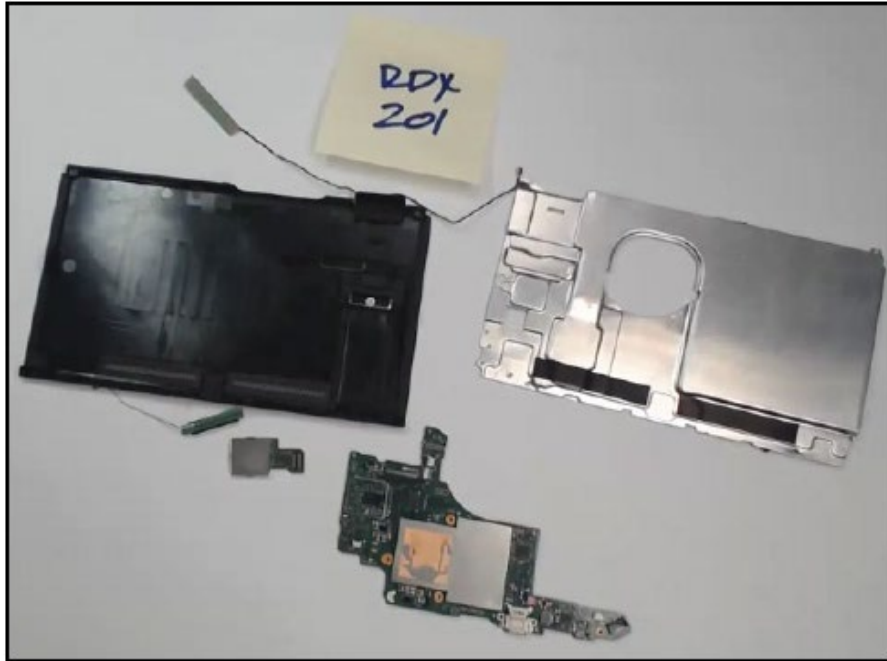
411. Hirschman disclosed portable computer system 100 and portable computer system 2600. Hirschman (Ex. 1007), Figs. 1–3, 5, 9A–10C, 12–15, 19A–19C, 20A–20C, 22, 24A–B, ¶¶ 52–53, 80–82. The computer system contained “touchscreen 230 [that] may be electrically mated with a circuitboard 240,” and Hirschman disclosed that “circuitboard 240 may contain various components of a portable computer devices, **such as a CPU, graphics processor, operating memory, communications busses, storage devices, and/or other equipment,**” including “multiple communications ports 242, for example USB 2.0 ports,

mounted on the underside of the circuitboard 240.” Hirschman (Ex. 1007) at ¶ 56 (emphasis added). Portable computer system 100 and portable computer system 2600 are thus “electronic equipment controlled by a CPU.” Ex. 1028 (Claim Constr. Order) at 5–6.

412. An example of Hirschman’s portable computer system 100 is illustrated in Figure 14A (annotated) below.



413. As noted above, I understand that Gamevice contends in the Northern District of California case that a set of electronic and non-electronic components within the Nintendo Switch console comprise a “computing device as recited.” The set of components is shown in the image below from the ITC’s Initial Determination. Ex. 1018 (’1197 ITC Initial Determination) at 108–110.



414. Hirschman disclosed a “computing device” under Gamevice’s apparent understanding of this limitation. As noted above, circuitboard 240 was electrically mated with touch-screen 230, and circuitboard 240 included a CPU along with “other [electronic] equipment,” such as “graphics processor, operating memory, communications busses, [and] storage devices.” Hirschman (Ex. 1007) at ¶ 56. Circuitboard 240 and touch-screen 230 are shown in the annotated version of Figure 3 below, in purple.

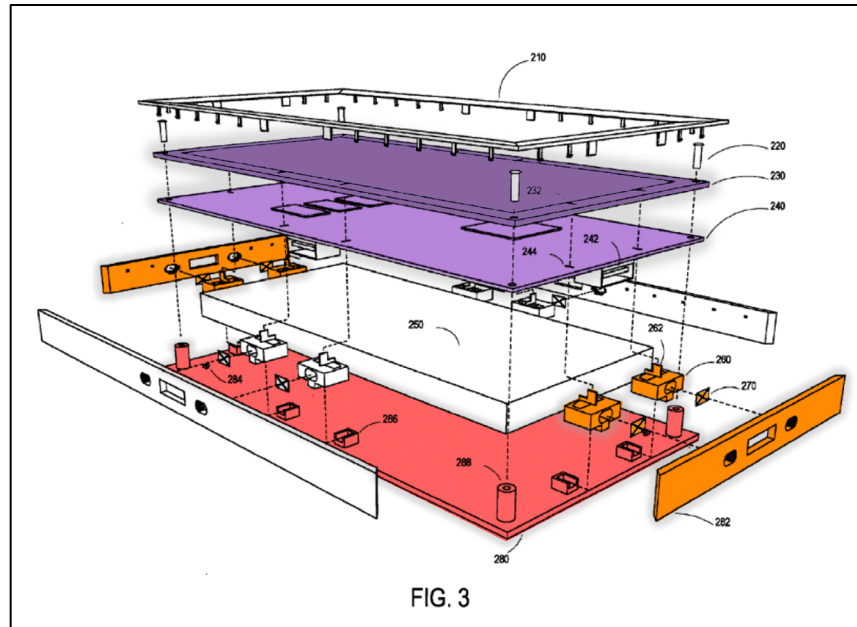


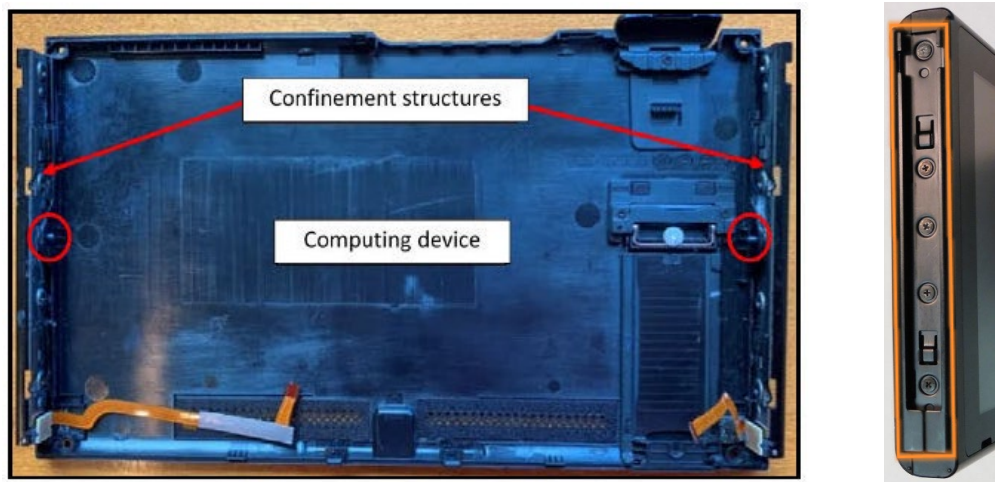
Fig. 3 (annotated)

415. Hirschman therefore anticipated this limitation under Gamevice’s apparent understanding of the limitation.

- c. 1[b][1]: *a pair of confinement structures, the pair of confinement structures interacting with the computing device and adjacent at least two opposing sides of the computing device, but not more than three sides of the sides of the computing device,*

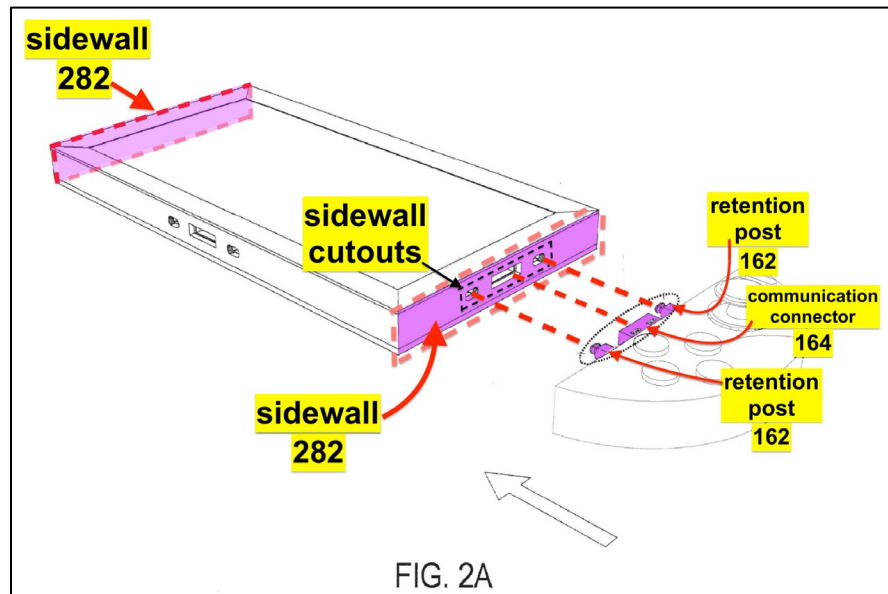
416. I understand that Gamevice contends in the Northern District of California case that side rails on the Nintendo Switch console constitute the “pair of confinements structures interacting with the computing device and adjacent at least two opposing sides of the computing device, but not more than three sides of the sides of the computing device.” Ex. 1018 (’1197 ITC Initial Determination) at 115–116 (“Gamevice argues, in part: ... ‘The Nintendo Switch’s side rails perform the identical or substantially the same function as the claimed ‘confinement

structures’—they confine the computing device because the side rails are screwed to the side tabs/flanges of the back cover, and thus are in pressing contact with opposite sides of the computing device.””). Gamevice’s position is illustrated in the image at left below (Ex. 1018 (’1197 ITC Initial Determination) at 118), while the image at right below shows a siderail on the exterior of the Nintendo Switch console when the console is assembled.



417. Hirschman disclosed a pair of confinement structures interacting with the “computing device” and adjacent opposites sides of the computing device, under Gamevice’s understanding of this limitation, in the form of sidewalls 282 and retention structures 260. Hirschman (Ex. 1007) at ¶¶57–58. Hirschman disclosed that portable computer system 100 included a chassis 280, which as discussed below (at ¶¶ 440–443) regarding limitation 1[c][1], is a structural bridge under Gamevice’s understanding. The components of the portable computer system 100 are “mounted” on the chassis. Hirschman (Ex. 1007) at ¶ 57.

418. To achieve this, Hirschman disclosed “sidewalls 282, which contain cutouts in the shape and size to receive retention posts 162 and communications connectors 164, such as those shown in Fig. 2A.” Hirschman (Ex. 1007) at ¶ 57.

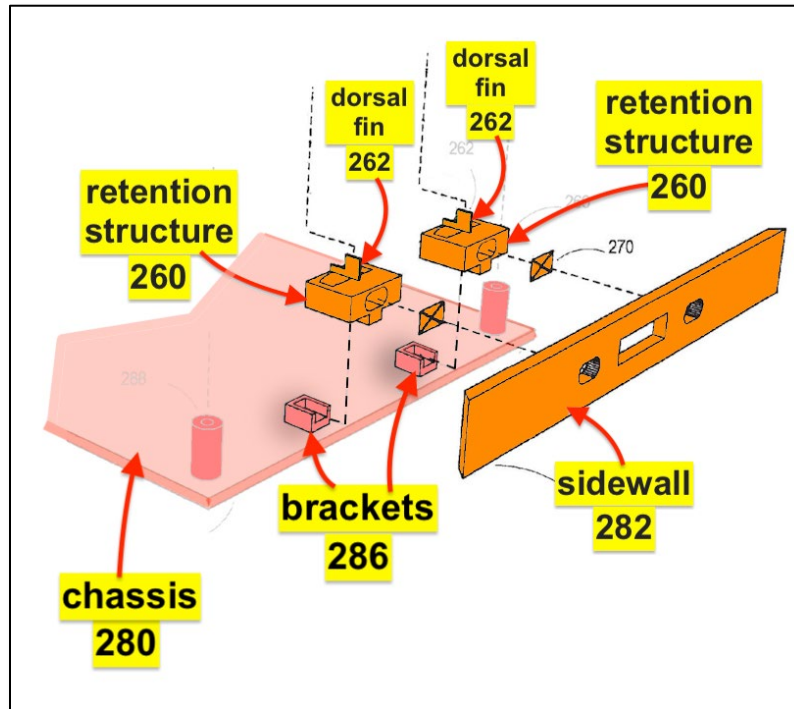


Hirschman 2A (modified and annotated)

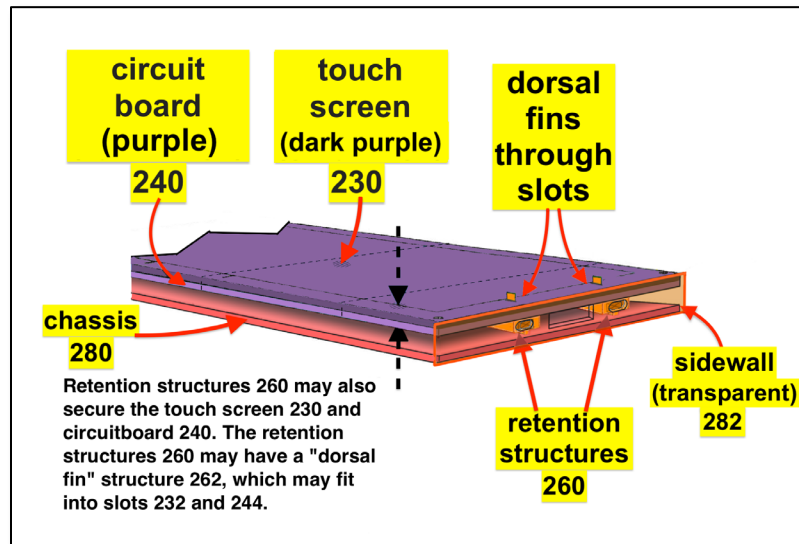
419. The retention posts 162 are “receive[d]” into retention structures 260. Hirschman (Ex. 1007) at ¶ 62. Retention structures 260 “**secure** the touch-screen 230 and circuitboard 240,” in addition to battery 250. Hirschman (Ex. 1007) at ¶¶ 57–58 (emphasis added). “The retention structures 260 may have a ‘dorsal fin’ structure 262, which may fit into slots 232 and 244. Other interlocking configurations for the retention structures 260 and slots 232 and 244 may be provided in other embodiments.” Hirschman (Ex. 1007) at ¶ 58. Retention structures 260 are “inserted into and secured by brackets 286,” which “may be

extruded from ... the surface of the chassis 280.” Hirschman (Ex. 1007) at ¶ 57.

This configuration is illustrated in the images below.



Hirschman Fig. 2A (modified and annotated)



Confinement structures of Hirschman
interacting with the circuitboard 240 and touch-screen 230

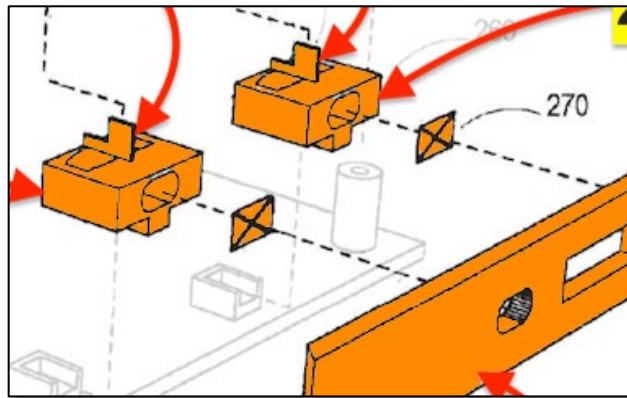
420. A POSITA would have understood that sidewalls 282 and retention structures 260 are connected to one other. This would be a necessity for at least two reasons. First, a firm connection between the sidewall and the retention structure would prevent intrusion of dust or other substances that could damage the electronics within the retention structures (via the push-through dust cover 270, shown in the above image Fig. 2A). Secondly, such a firm connection would achieve Hirschman's stated goal of "structural integrity to withstand forces of torsion, flex and other physical stresses to which a user may subject a combined unit, to avoid damage to delicate electrical connectors, and to provide a physically secure mated state between accessories and the portable electronic system."

Hirschman (Ex. 1007) at ¶ 61.

421. A POSITA would also have understood that the sidewalls 282 and retention structures 260 are secured to the chassis 280 by way of brackets 286. This arrangement would have provided several benefits, including a way to access the interior components of the device on a particular side for purposes of repair or replacement, in the case of damage or malfunction of internal components, as well as a way to repair or replace the sidewalls 282 and retention structures 260 in the case of damage to these parts.

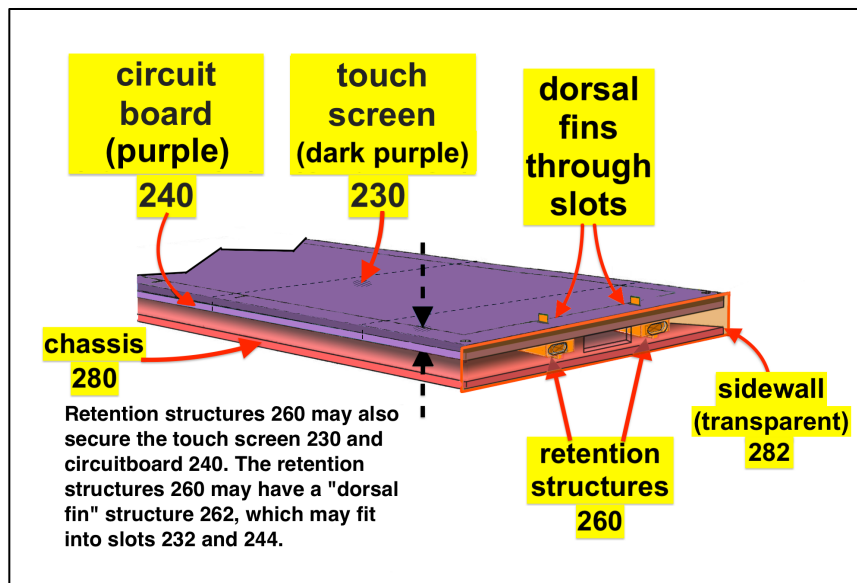
422. Further, as shown below and in Figures 3 and 5, a POSITA would have recognized item 270 as a push-through dust cover intended to protect the

interior of the portable computer system 100, including retention structures 260, from damage due to intrusion from dust, water, and other substances. Item 270, however, would not be effective in preventing intrusion from dust, water, or other substances, if sidewalls 282 and retention structures 260 were not connected to one another.



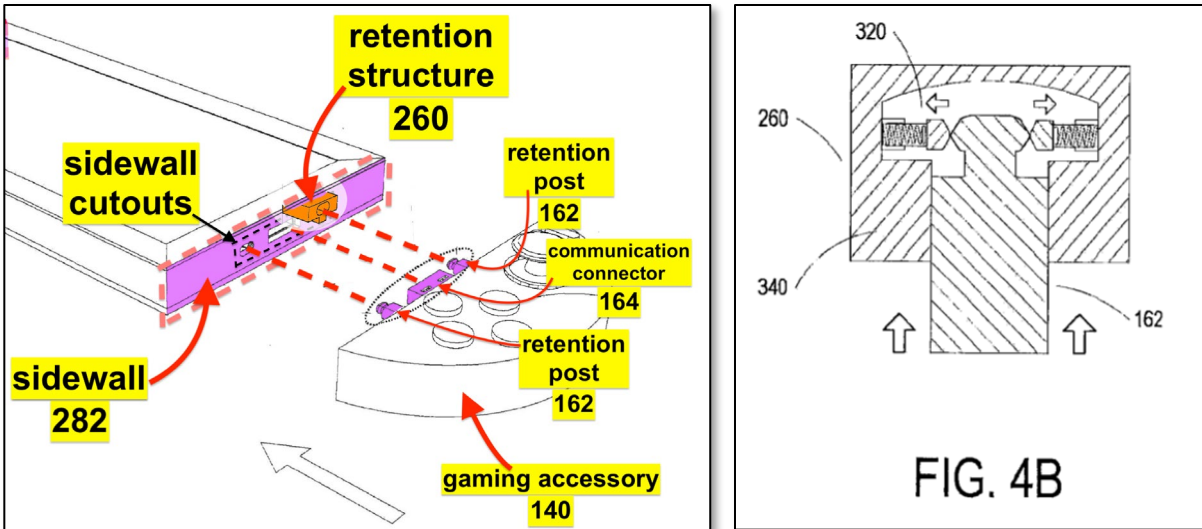
Hirschman Fig. 2A (modified and annotated)

423. As shown below, sidewalls 282 and retention structures 260 also “interact” with the “computing device” (circuitboard 240 and touch-screen 230). Retention structures 260 have “dorsal fin” structures 262, which “fit into slots 232 and 242.” Hirschman (Ex. 1007) at ¶ 58. Slots 232 and 242 are located in circuit board 240 and touch-screen 230, respectively. Hirschman (Ex. 1007), Fig. 3. As such, when the dorsal fin structures of retention structures 260 are inserted into slots 232 and 242, the “confinement structures” (sidewalls 282 and retention structures 262) are in contact with, and thus physically interact with the “computing device” (circuitboard 240 and touch-screen 230).



**Confinement structures of Hirschman
interacting with the circuitboard 240 and touch-screen 230
Fig. 3 (modified and annotated for illustration purposes)**

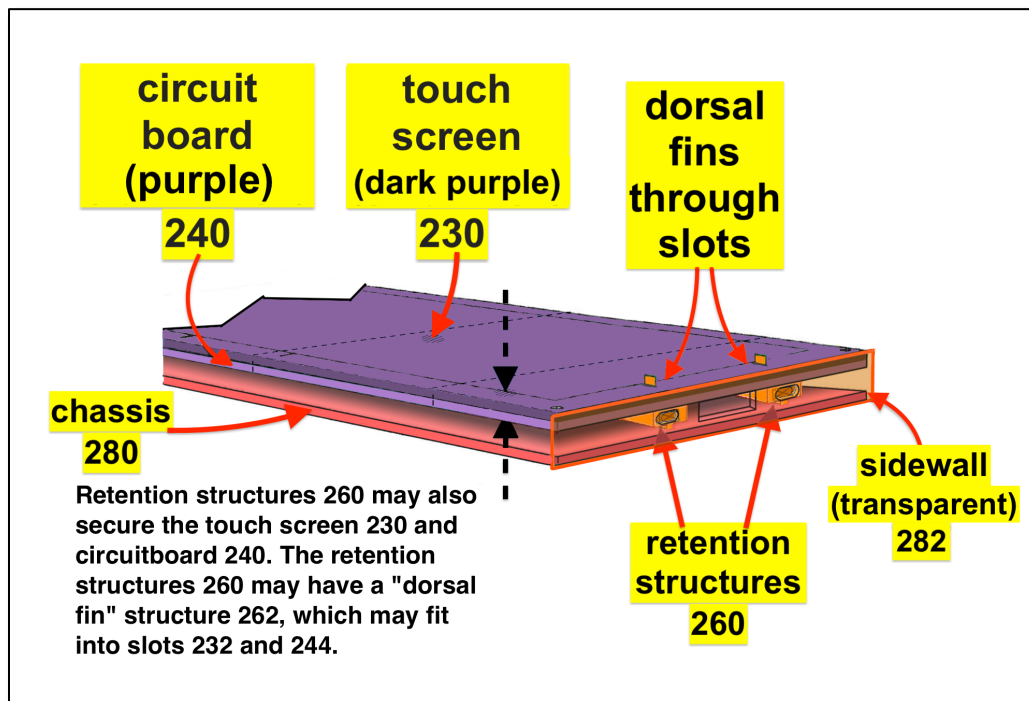
424. The “confinement structures” also physically interact with the “computing device” when Hirschman’s portable computer system is in use. For example, when a user inserts gaming accessory 140 or 520 into “port group 120,” retention post 160 (or 162) is received into retention structure 260. Hirschman (Ex. 1007) at ¶¶63, 66. When that occurs, and as shown in Figure 4B, the “insertion of retention post 162 may produce physical resistance” from retention structure 260 through spring-loaded plunger 320. Hirschman (Ex. 1007) at ¶ 63.



425. A POSITA would thus have understood that insertion of retention posts 160 (or 162) into retention structures 260 would have caused force to be applied to retention structures 260, which in turn would have applied force to the “computing device” (circuitboard 240 and touch-screen 230) through dorsal fin structures 262 that are inserted into slots 232 and 242. The computing device, in turn, would have provided a resistive force to the force resulting from the insertion of the retention posts into the retention structures. The “confinement structures” would thus have physically interacted with the “computing device.” Similarly, if a user were to tilt the portable computer system 100 to the left or right, gravity would, for example, cause the “computing device” to apply a force against the retention structures 260 (and specifically against dorsal fin structures 262), which, in turn, would have provided a resistive force to the force applied by the “computing device.” Hirschman (Ex. 1007) at ¶ 58.

426. The “confinement structures” also electrically interact with the “computing device” (circuit board 240 and touch-screen 230). Slots 232 and 244, into which dorsal fin structures 262 fit, “may be electrically conductive and may be part of at least one of the circuits contained within the touch-screen 230 and circuitboard 240. The retention structures 260 may be fabricated of metal or other conductive material in some embodiments and may serve and conduits for electrical power as well as electrical signaling.” Hirschman (Ex. 1007) at ¶ 58. Additionally, “[c]ommunication signals may travel through retention structures 260.” Hirschman (Ex. 1007) at ¶ 60. And as Hirschman disclosed: “In another embodiment of the invention, the electrical connection between and accessory and the portable computer system retention elements may be used for low-bandwidth signaling of information such as application state, suggested portable computer system configuration, or other information.” Hirschman (Ex. 1007) at ¶ 60. In view of these disclosures, a POSITA would have understood Hirschman disclosed that electricity (including communication signals in the form of electricity) travelled between retention structures 260 and circuitboard 240, through retention structures 260 and dorsal fin structures 242, or through wired connections between the retention structures 260 and circuitboard 240. In this way, the “confinement structures” would have electrically interacted with the “computing device.”

427. Hirschman also taught “confinement structures” adjacent to at least two opposing sides of the computing device, but not more than three sides of the sides of the computing device. As shown in Figure 3, Hirschman disclosed that “confinement structures” (sidewalls 282 and retention structures 260) are at least nearby,⁵⁶ if not in contact with the “computing device” (circuitboard 240 and touch-screen 230).



**Confinement structures of Hirschman
interacting with the circuitboard 240 and touch-screen 230
Fig. 3 (modified and annotated for illustration purposes)**

⁵⁶ Ex. 1028 (Claim Construction Order) at 5 n.3 (“The parties have also stipulated to the construction of ... ‘adjacent,’ meaning “nearby but not necessarily next to,’ ...”).

428. Hirschman further disclosed in Figures 3 and 5, and at paragraph 66, that “port groups 120 [which are comprised of retention ports 122 and communications port 124] may be present on each of four sides of portable computer system 100,” but that “[i]n other embodiments, port groups 120 may be included on fewer sides” Hirschman (Ex. 1007) at ¶ 52. Hirschman thus disclosed including port groups 120 on two or three sides, which would include two opposing sides of the computing device. A POSITA would also have understood that where ports groups 120 are not provided on a side of the computing device, retention structures 260 would not be provided on that side of the computing device. Any sides without retention structures do not include confinement structures.

429. In addition, Hirschman was published in 2012 and taught a portable computer device. A POSITA working in consumer electronics in 2012 would have been aware of the fierce price competition in portable electronics. For example, the Sony Vita handheld game console, an impressive computing device from one of the world’s largest electronics companies, launched in 2012, and retailed for \$249.⁵⁷

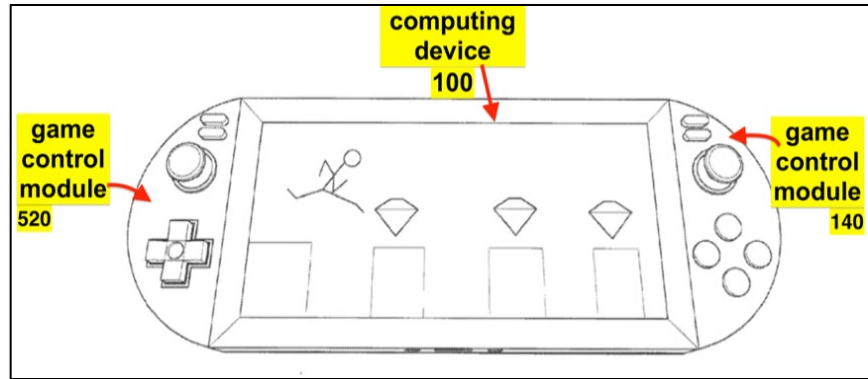
⁵⁷ <https://www.pastemagazine.com/tech/gadgets/the-15-best-gadgets-of-2012/> (last visited March 4, 2023).



The Sony Vita
“THE 15 BEST GADGETS OF 2012” Paste Magazine

430. Hirschman’s invention targeted the handheld gaming applications, but given the aggressive pricing of the Sony Vita, a POSITA would have recognized that having ports on four sides of the unit, while an interesting potential feature, would not be justified from a cost and price perspective. A POSITA in consumer electronic markets would have understood the importance of shaving pennies off of the price of individual components that go into a high-volume product like the Sony Vita. Ports on four sides of the device would have been one of the first considered features to be sacrificed in the interest of price competitiveness.

431. In addition, whether the target audience was gaming, or more traditional computing, if the device were limited to having two ports, a POSITA would have understood that those ports would be located on opposing sides of a landscape-oriented display, such as that shown below.



Hirschman Fig. 14a (annotated)

432. A POSITA would have recognized that in the video game hardware business, most games have historically been developed for landscape mode, matching the aspect ratio of the home television. Unless a manufacturer was willing to invest millions of dollars in developing a line of new portrait-only video games, a handheld gaming device would have had a greater chance of success with a landscape form factor, given the larger catalog of existing games.

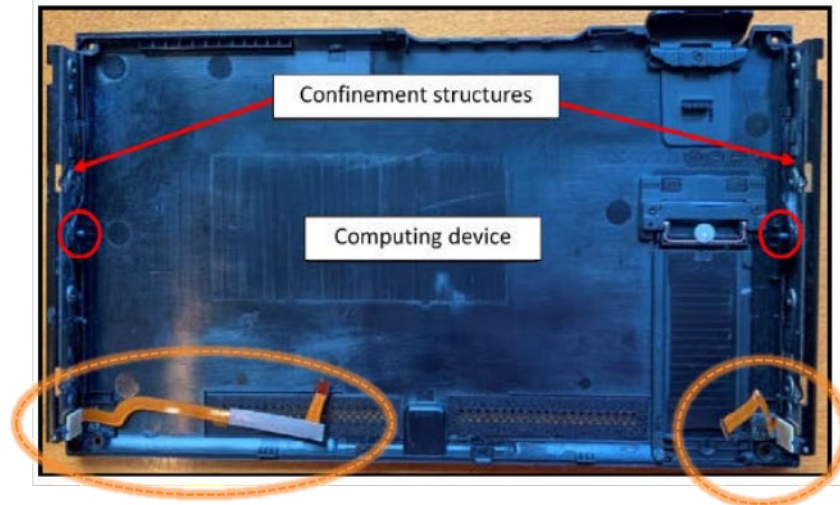
433. A POSITA would have further recognized that the landscape form factor would also be preferable if one was targeting the home computing arena, as the device would have had to be compatible with the dominant operation system, Microsoft Windows, with millions of commercial applications, the vast majority of which were designed for the landscape form factor.



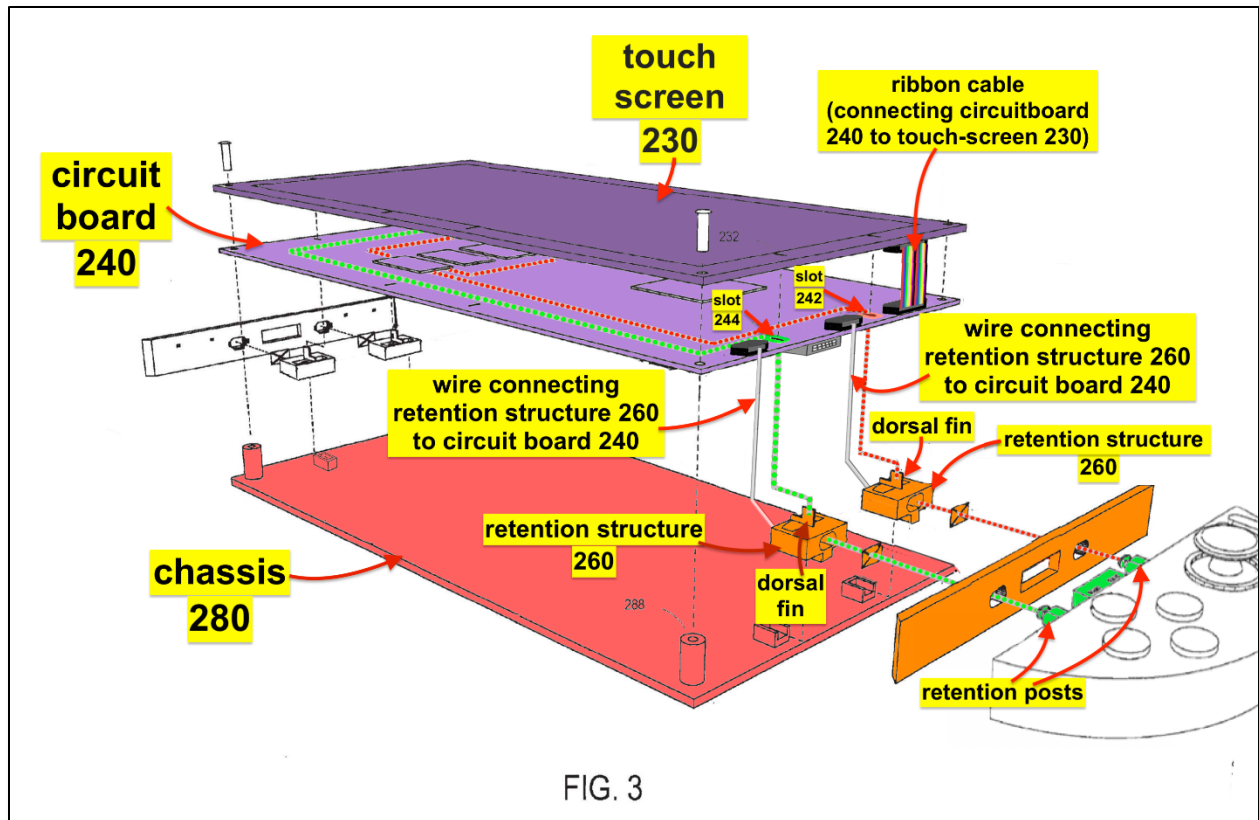
434. Hirschman thus anticipated or rendered obvious this limitation under Gamevice’s understanding of the claim language.

d. 1[b][2][a]: *each of the pair of confinement structures comprising a communication link,*

435. I understand that Gamevice contends in the Northern District of California case that a set of “flexible printed circuits” or FPCs attached to the side rails in the Nintendo Switch console satisfies the limitation “each of the pair of confinement structures comprising a communication link.” Ex. 1018 (’1197 Initial Determination) at 125–126. Those FPCs are identified in the annotated image below (circled in orange) from the ITC’s Initial Determination.



436. Hirschman disclosed or rendered obvious a “pair of confinement structures comprising communication links,” under Gamevice’s understanding of the scope of this limitation. As discussed above (at ¶¶ 416–434) regarding limitation 1[b][1], Hirschman disclosed a pair of “confinement structures” on opposing sides of the computing device. Additionally, as discussed above, Hirschman disclosed that “[c]ommunication signals may travel through retention structures 260” from the gaming accessories 140 and 520 to circuitboard 240, including for “low-bandwidth signaling” and other purposes. Hirschman (Ex. 1007) at ¶¶ 57, 60. The image below, built as a composite of Figures 2A and 3, illustrates the structural and electrical connection between the retention posts 162 (carrying signals from the input device) and the retention structure 260, which connects those signals to the computing device circuit board 240, including through the dorsal fins 262 mating with slots such as 244.



Hirschman Fig. 3 (modified and annotated)

437. In view of Hirschman’s disclosures that retention structures 260 could be used for “communication signals,” a POSITA would have understood that a wired connection between retention structure 260 and circuitboard 240 could be used to accomplish that signaling. For example, Hirschman disclosed that the “dorsal fin structure” 242 “**may be** part of at least one of the circuits contained within ... circuitboard 240.” Ex.1007 (Hirschman) at ¶ 58 (emphasis added). Hirschman thus taught that electrical connections between the retention structures 260 and the circuitboard 240 could be implemented in a different way. One known design choice would have been a connection using one or more wires going from the retention structures 260 to circuitboard 240. For example, a POSITA would

understand that one could use one of variety of available wired connections, to facilitate connections from the retention structures 260 to the circuitboard 240. A physical, flexible wired connection was and is a known, common way to connect electrical components within computing devices, including portable computing devices.⁵⁸

- e. 1[b][2][b]: *each of the communication links configured for electronic communication with the computing device.*

438. I understand that Gamevice contends in the Northern District of California case that “configured for electronic communication” merely requires passing an electrical signal. Ex. 1018 (’1197 ITC Determination) at 125 (““Gamevice argues, in part: ... ‘Contrary to Nintendo’s position, the claimed ‘electronic communication’ does not require processing of signals passing through a wire, or system including a transmitter, a communication medium or channel, a receiver, and noise.””).

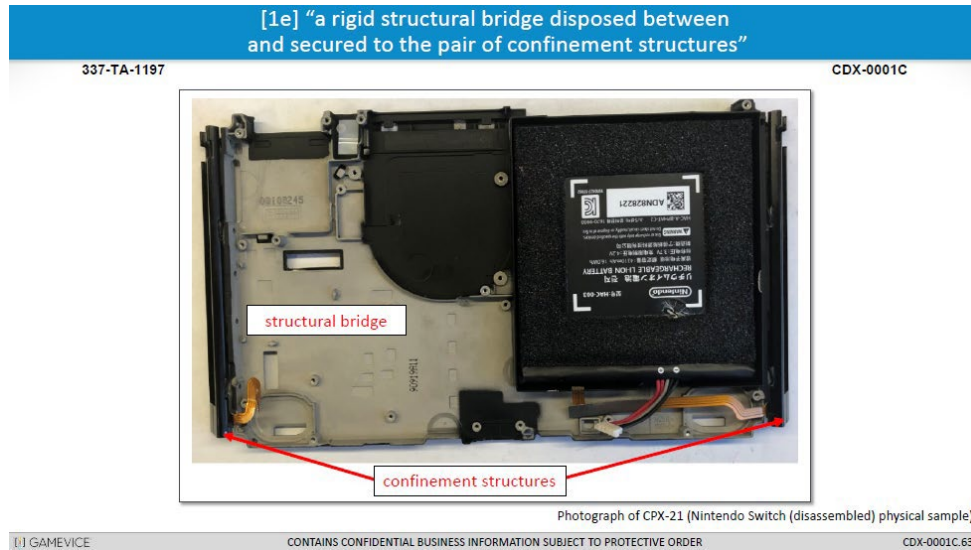
⁵⁸ *Internal Connector Guide*, CABLE2GO.COM,

<http://web.archive.org/web/20140713132759/https://www.cablestogo.com/learning/connector-guides/internal> (last visited March 6, 2023); Jeff Suovanen, *Technique: Recognizing & Disconnecting Cable Connectors*, <http://web.archive.org/web/20151226181135/https://www.ifixit.com/Guide/Recognizing+&+Disconnecting+Cable+Connectors/25629> (last visited March 6, 2023).

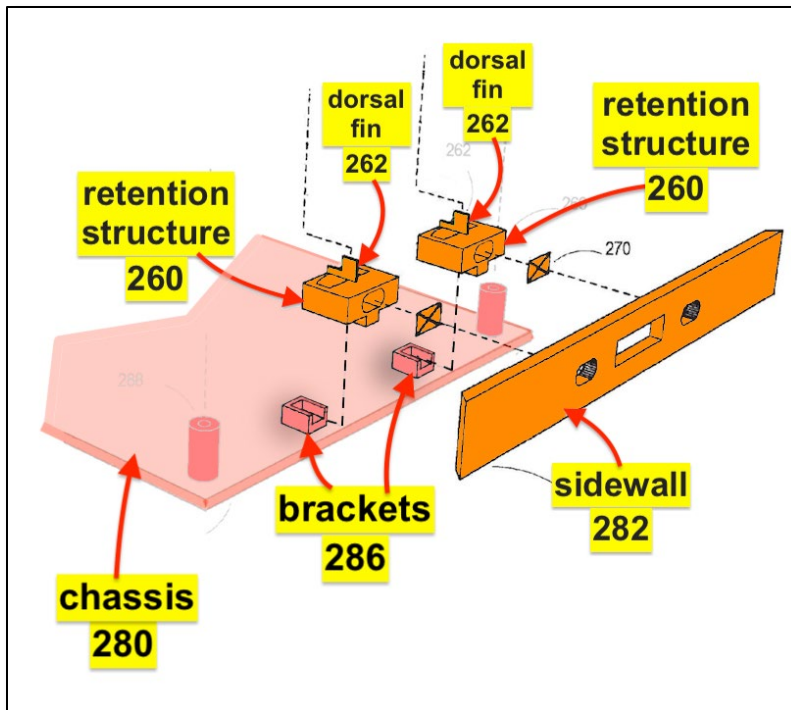
439. Hirschman disclosed or rendered obvious “communication links configured for electronic communication with the computing device” under Gamevice’s understanding of the scope of this limitation. As discussed above at ¶¶ 416–437 regarding limitations 1[b][1] and 1[b][2][a], Hirschman disclosed that retention structures 260 are for “electrical signaling” with the circuitboard 240, including “communication signals.” Hirschman (Ex. 1007) at ¶¶ 52, 58–60. The retention structures pass signals from and to the circuitboard 240, for example, by way of dorsal fin structures 242, Hirschman (Ex. 1007) at ¶ 58, or, as a POSITA would have understood, a wired connection, Hirschman (Ex. 1007) at ¶¶ 59–60.

f. 1[c][1]: *a rigid structural bridge disposed between and secured to the pair of confinement structures,*

440. I understand that Gamevice contends in the Northern District of California case that the “upper frame” within the Nintendo Switch console constitutes “a rigid structural bridge disposed between and secured to the pair of confinement structures.” Ex. 1018 (’1197 Initial Determination) at 130 (“Gamevice argues, in part: ‘The ‘structural bridge’ limitation is satisfied by the Nintendo Switch’s upper frame, which is disposed between and secured to the Nintendo Switch’s side rails ... using screws.’”). The “upper frame” is shown below (gray).



441. Hirschman disclosed or rendered obvious a “a rigid structural bridge disposed between and secured to the pair of confinement structures,” under Gamevice’s understanding of the scope of this limitation. Hirschman disclosed that the internal components of portable computer system 100 “may be mounted” on chassis 280. Hirschman (Ex. 1007) at ¶ 57. Chassis 280 spans between opposing sides of the portable computer system 100 and “secures” retention structures 260 (and thus, as a POSITA would have understood, sidewalls 282 which are connected to retention structures 260). Hirschman (Ex. 1007), Fig. 3, ¶ 57. The retention structures 260 are “secured” by chassis 280 when “inserted into ... brackets 286,” “which may be extruded from ... the surface of the chassis 280.” Hirschman (Ex. 1007) at ¶ 57. This arrangement is shown in Figure 2A below.



Hirschman Fig. 2A (modified and annotated)

442. As such, chassis 280 (structural bridge) is “a physical apparatus that secures two or more components to each other across a distance,” and it is “disposed between and secured to a pair of confinement structures,” under Gamevice’s understanding.

443. A POSITA would also have understood that chassis 280 is rigid. Hirschman discloses that the construction of the portable computer system is designed to have “structural integrity.” Hirschman (Ex. 1007) at ¶ 61 (“**This configuration and method of construction may provide structural integrity to withstand forces of torsion, flex and other physical stresses to which a user may subject a combined unit, to avoid damage to delicate electrical connectors, and to provide a physically secure mated state between accessories and the portable**

electronic system. ... The user may grasp the game accessories 140 while using or transporting the portable electronic system. A sufficiently **rigid** and secure attachment [of the game accessories 140 to the portable electronic system] allows a user to do so without causing damage to the portable electronic system, the accessories, or the retention structures 260 connecting the portable electronic system to the accessories.” (emphasis added)); Hirschman (Ex. 1007) at ¶ 55 (“The portable computer system may be constructed in the form of a multilayer ‘sandwich’, with components from the different layers interconnected for to provide **structural integrity**” (emphasis added)). As chassis 280 is one of the primary parts that form the outer shell of the computer system, Hirschman’s disclosures indicate to a POSITA that chassis 280 is rigid.

g. 1[c][2][a]: *the rigid structural bridge comprising a passageway between the pair of confinement structures,*

444. I understand that Gamevice contends in the Northern District of California case that a “portion” of the “upper frame” assembly within the Nintendo Switch that “provides a three-dimensional space” constitutes “a passageway between the pair of confinement structures.” Ex. 1018 (’1197 Initial Determination) at 134–135 (“Gamevice argues, in part: ‘The ‘passageway’ limitation is met by the upper frame of the Nintendo Switch console. ... [T]he upper frame has a tray-like structure disposed between the side rails. ... The tray-like structure provides a three-dimensional space in the lower portion of the upper

frame assembly to meet the ‘passageway’ limitation. The PCBs are located in that space and the flexible printed circuits from the side rails connect to pin connectors on the PCB, such that the corresponding portion of the upper frame supports and promotes electrical communication between the flexible printed circuits and the PCB.”).

445. Hirschman disclosed or rendered obvious a “rigid structural bridge” and a “pair of confinement structures” under Gamevice’s understanding, as discussed above at ¶¶ 416–434, 440–443 regarding limitations 1[b][1] and 1[c][1]. Hirschman also disclosed or rendered obvious a rigid structural bridge comprising a “passageway between the pair of confinement structures.” Hirschman’s chassis 280 provides an area on which the internal components of portable computer system 100 are “mounted,” as depicted in Figure 3 below.

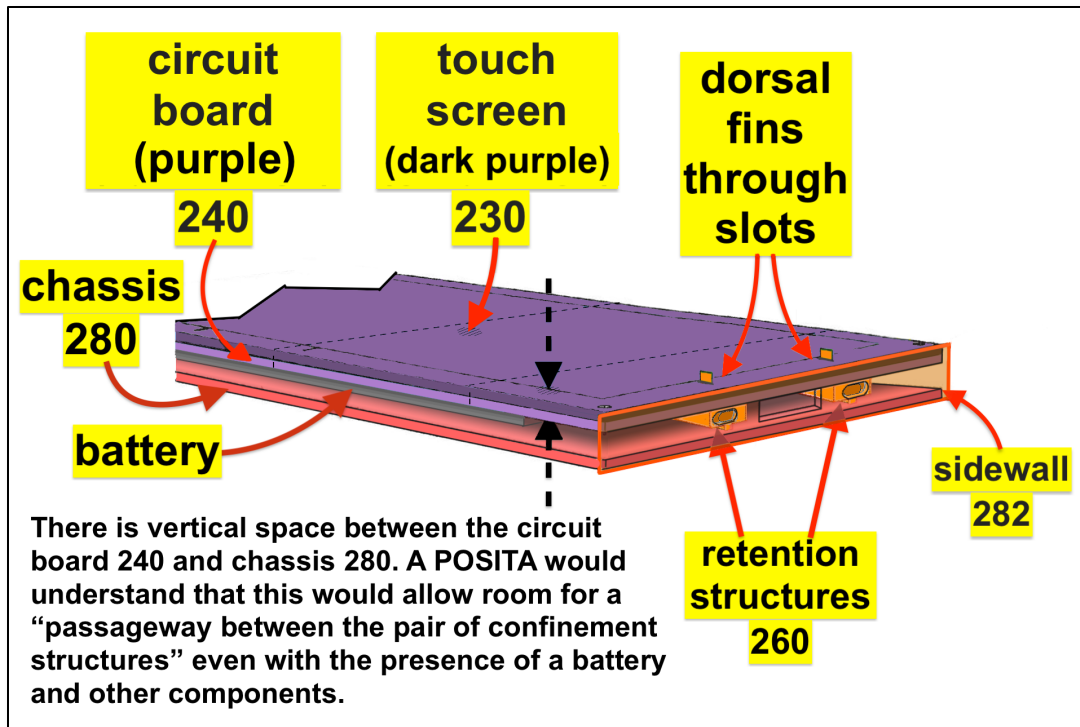


Fig. 3 (modified and annotated) demonstrating the passageway between the circuitboard 240 and the chassis 280

446. As discussed above at ¶¶ 438–439 regarding limitation 1[b][2][b], a POSITA would have understood Hirschman taught a wired connection between retention structures 260 and circuitboard 240, including for “communication signals.” A POSITA would also have understood that the space next to or around the battery on chassis 280 would have accommodated, in part, this wired connection. Hirschman (Ex. 1007) at ¶¶ 57, 60. Thus, Hirschman disclosed or rendered obvious a “passageway” under Gamevice’s understanding.

- h.** 1[c][2][b]: *the passageway promotes electrical communication between the communication link of a first confinement structure of the pair of confinement structures and the computing device, the passageway further promotes electrical communication between the communication link of a second confinement structure of the pair of confinement structures and the computing device; and*

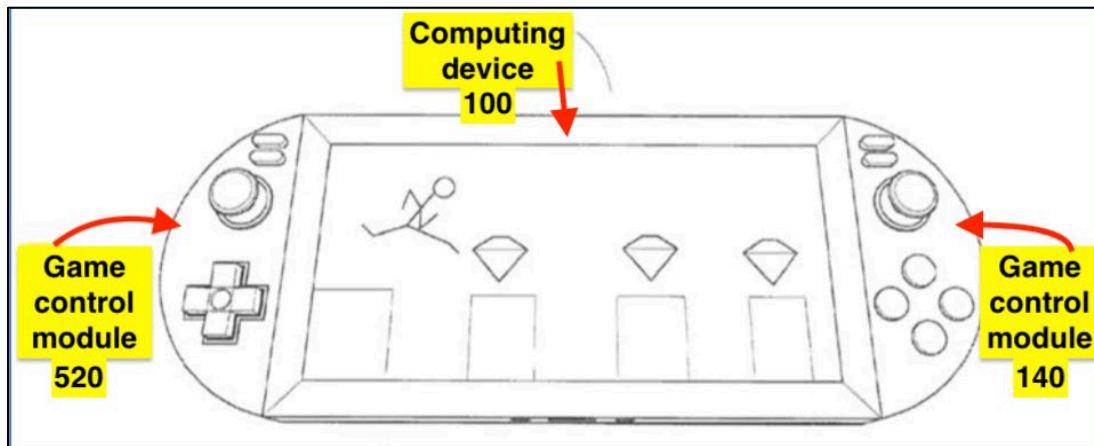
447. I understand that Gamevice contends in the Northern District of California case that the space on the “upper frame” that contains the FPCs “promotes electrical communication” between each of side rails and the printed circuit board within the Nintendo Switch merely because the space “accommodates” the FPCs, even though other components also exist in the space and are near to, or even on top of, the FPCs. Ex. 1018 (’1197 Initial Determination) at 143–145 (“The Staff argues, in part: ‘Gamevice contends, without explanation, that the alleged passageway ‘promotes electrical communication.’”).

448. Hirschman disclosed or rendered obvious this limitation under Gamevice’s understanding. As discussed above at ¶¶ 444–446 regarding limitation 1[c][2][a], Hirschman taught a space next to or around the battery on chassis 280 that would accommodate a wired connection between retention structures 260 and circuitboard 240.

- i.** 1[d][1]: *a pair of electronic game control modules,*

449. Hirschman disclosed a pair of electronic game control modules (game accessories) 140 and 520. For example, Fig. 14A of Hirschman shows gaming

accessories 140 and 520, “which features common physical controls 522, including buttons, a joystick, and a d-pad” Hirschman (Ex. 1007) at ¶ 67.

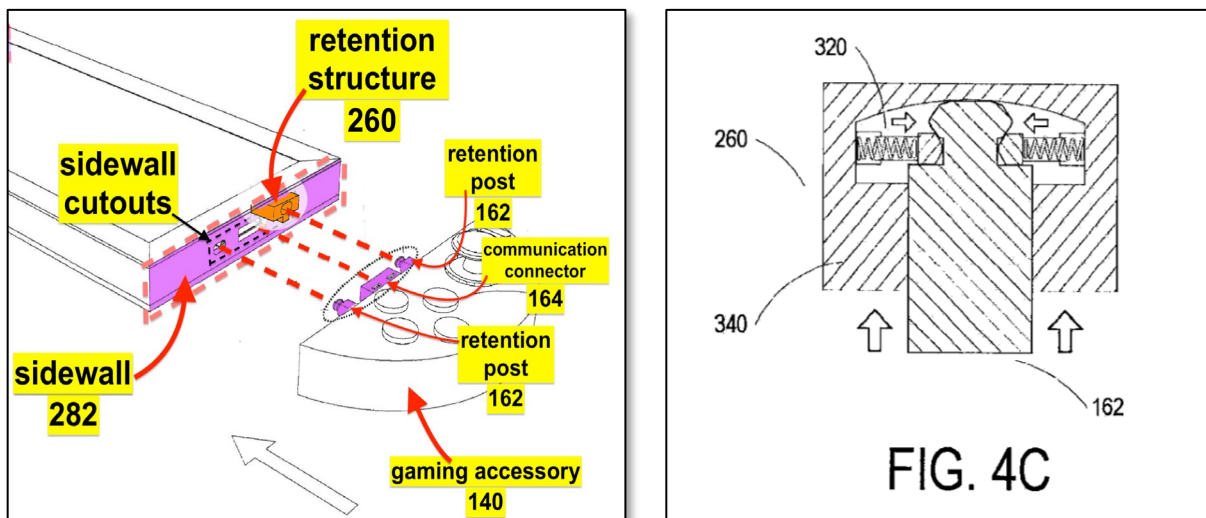


Hirschman Fig. 14A (annotated) disclosing a pair of electronic game modules

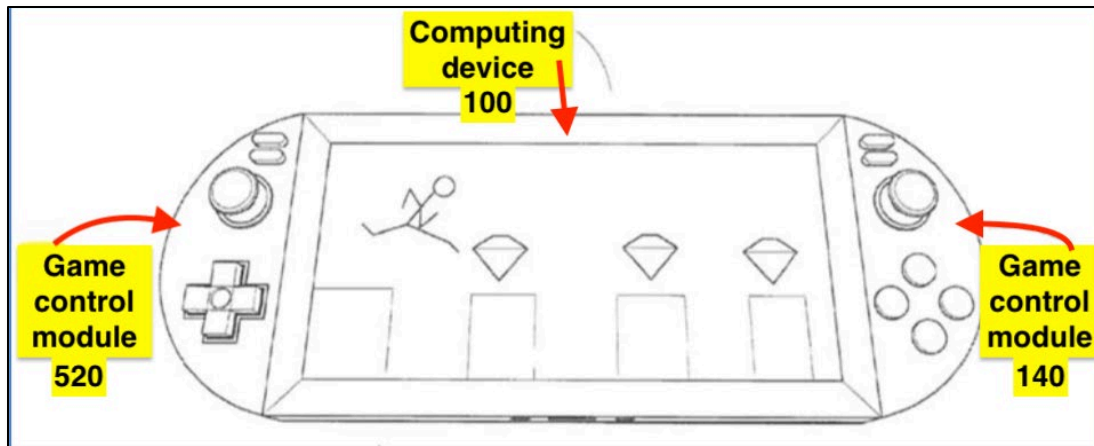
- j. 1[d][2]: *each electronic game control module of the pair of electronic game control modules is secured to and interacts with a corresponding confinement structure of the pair of confinement structures,*

450. Hirschman disclosed that each of gaming accessories 140 and 520 (“electronic game control modules”) are secured to sidewalls 282 and retention structures 260 (“confinement structures”) using retention posts 162: “The retention element 260 may utilize an inner coupling mechanism to ensure a physically secure mated state between accessories and the portable electronic system.” Hirschman (Ex. 1007) at ¶ 61. Hirschman disclosed that that “coupling mechanism” includes, for example, “a housing 340” in retention structure 260 that “may be shaped to receive a retention post 162.” Hirschman (Ex. 1007) at ¶ 62. The housing 340 “may contain two opposed spring-loaded plungers” that provide

“physical resistance” when trying to pull the game accessories away from the portable computer system. Hirschman (Ex. 1007) at ¶¶ 62–64. “The retention post 162 and spring-loaded plungers 320 may be shaped such that the spring-loaded plungers fully or substantially extend into the ‘neck’ of the retention post 162, firmly securing the retention post 162 [and thereby game accessory] until such time as removal is desired.” Hirschman (Ex. 1007) at ¶ 64. This arrangement is demonstrated, for example, in Figure 2 (modified and annotated) and Figure 4C below.



451. Figure 14A depicts portable computer system 100 when “integrally attached to gaming accessories 140 and 520.” Hirschman (Ex. 1007) at ¶¶ 23, 82.



Hirschman Fig. 14A (annotated) disclosing a pair of electronic game modules

452. Thus, when gaming accessories are attached to portable computer system 100, the modules are secured to corresponding “confinement structures” (sidewalls 282 and retention structure 260).

453. Hirschman also disclosed that, when connected, gaming accessories 140 and 520 “interact” with the sidewalls 282 and retention structures 260. For example, when retention posts 162 are inserted into housings 340 of retention structures 260, “insertion of retention post 162 may produce physical resistance for a user during the insertion process” Hirschman (Ex. 1007) at ¶ 63. Similarly, “physical resistance may be present during the extraction process due to the symmetric shape of the ‘head’ of the retention post 162.” Hirschman (Ex. 1007) at ¶ 63. Thus, the retention posts 162 of gaming accessories 140 and 520 apply pressure to and encounter resistance from the sidewalls 282 and retention structures 260 (“confinement structures”), thereby physically interacting.

454. The game accessories also electrically interact with the retention

structures 260: “Electrical power or signals may flow via retention structures 260 and retention posts 160 as illustrated in FIG. 2A.” Hirschman (Ex. 1007) at ¶ 59; Hirschman (Ex. 1007) at ¶ 60 (“Communication signals may travel through retention structures 260 and retention posts 160 as illustrated in FIG. 2A In another embodiment of the invention, the electrical connection between an accessory and the portable computer system retention elements may be used for low-bandwidth signaling of information such as application state, suggested portable computer system configuration, or other information.”).

455. Hirschman thus anticipated this limitation or rendered it obvious, under Gamevice’s understanding.

- k. 1[d][3]: *each electronic game control module in electronic communication with the communication link of its corresponding confinement structure,*

456. I understand that Gamevice contends in the Northern District of California case that “electronic communication” occurs, as between “game control modules” and “communication links of [] corresponding confinement[s],” when the “connectors” on the modules (Joy-Cons) engage with and “send signals containing electronic information” to the connectors on the confinement structures (side rails of the Nintendo Switch Console). Ex. 1018 (’1197 Initial Determination) at 147 (“Gamevice argues, in part: ‘In the Nintendo Switch, each Joy-Con is in electronic communication with the flexible printed circuit of its corresponding side

rail. The side rails have connectors that engage with the connectors on the Joy-Cons to send signals containing electronic information (e.g., bits or bytes of digital information) through the flexible printed circuits. ... Contrary to Nintendo's position, the claims do not require 'smart' communication or preclude the 'communication link' from being a 'dumb' wire.'").

457. Hirschman disclosed or rendered obvious "each electronic game control module in electronic communication with the communication link of its corresponding confinement structure," under Gamevice's understanding. As discussed above at ¶¶ 450–455 regarding limitation 1[d][2], gaming accessories 140 and 520 ("electronic game control modules") engage with sidewalls 282 and retention structures 260 when, for example, retention posts 160 (or 162) are inserted into housings 340 of retention structures 260. Hirschman (Ex. 1007) at ¶¶ 61–64. The game accessories also send electrical signals to and receive electrical signals from the portable computer system via retention posts 160 (or 162) and retention structures 260: "Electrical power or signals may flow via retention structures 260 and retention posts 160 as illustrated in FIG. 2A." Hirschman (Ex. 1007) at ¶ 59; Hirschman (Ex. 1007) at ¶ 60 ("Communication signals may travel through retention structures 260 and retention posts 160 as illustrated in FIG. 2A").

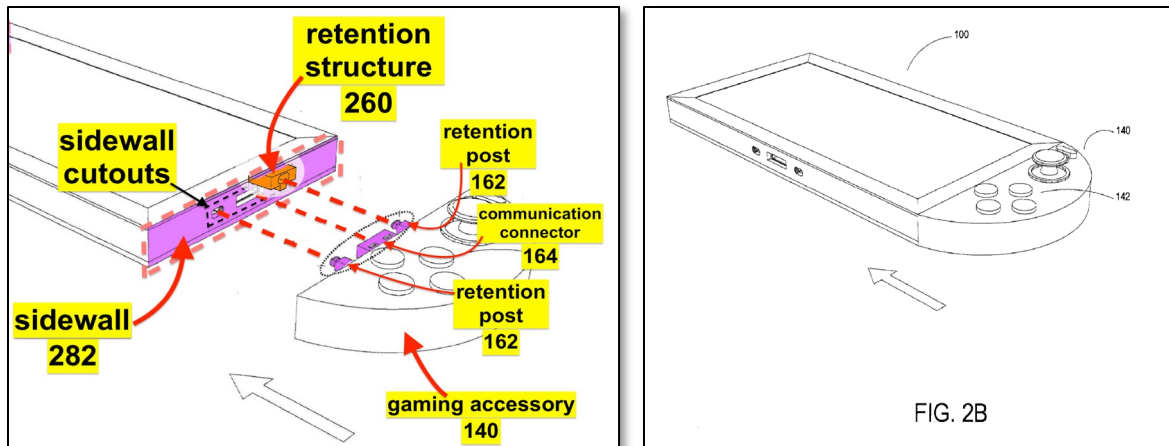
458. Hirschman thus anticipated this limitation or rendered it obvious,

under Gamevice's understanding.

- I. 1[d][4]: *wherein each electronic game control module is a separate and distinct structure from each of their corresponding confinement structures, forming no structural portion of their corresponding confinement structures, and*

459. Hirschman disclosed that its gaming accessories 140 and 520 are attached to and detached from portable computer system 100. Hirschman (Ex. 1007) at ¶ 93 (“[A] software timer may be incorporated into block 3702, so that a user may remove and/or attach multiple accessories before logic proceeds to block 3703.”); Hirschman (Ex. 1007) at ¶ 100 (“(“The database may be queried for a history of all system specific accessories ... allowing for previously illustrated logic to determine that a system specific accessory had been present and then removed.”); Hirschman (Ex. 1007) at Figs. 2A, 2B, 5–7, 14A, ¶¶ 61–64, 67.

460. Figures 2A and 2B below show this. In Figure 2A on the left (modified and annotated), gaming accessory 140 is not yet attached to portable computer system 100 through insertion of retention posts 162 into retention structures 260. Figure 2B, on the right, shows gaming accessory 140 attached to portable computer system 100 after insertion of retention posts 162 into retention structures 260.



461. Hirschman thus anticipated this claim limitation.

- m.** 1[d][5]: *in which each of the pair of confinement structures are separate and distinct structures from the structural bridge, forming no structural portion of the structural bridge,*

462. I understand that Gamevice contends in the Northern District of California case that the Nintendo Switch’s side rails, which Gamevice calls confinement structures, are “separate and distinct” from the “upper frame” assembly that Gamevice calls the “structural bridge.” Gamevice contends this is so because “Nintendo’s manual identifies [the side rails and upper frame] as separate and distinct, they are made of different materials, they serve different functions, and the screws attaching them together can be removed.” Ex. 1018 (’1197 Initial Determination) at 153. I therefore understand that Gamevice apparently understands this limitation is disclosed where the confinement structures and structural bridge are distinct parts, even if those parts are connected to one another, including by way of screws.

463. Under Gamevice’s understanding, Hirschman disclosed or rendered obvious “confinement structures” (sidewalls 282 and retention structures 260) that are separate and distinct from a “structural bridge” (chassis 280). Hirschman identified sidewalls 282, retention structures 260, and chassis 280 as separate parts. This is illustrated in Figure 3 below.

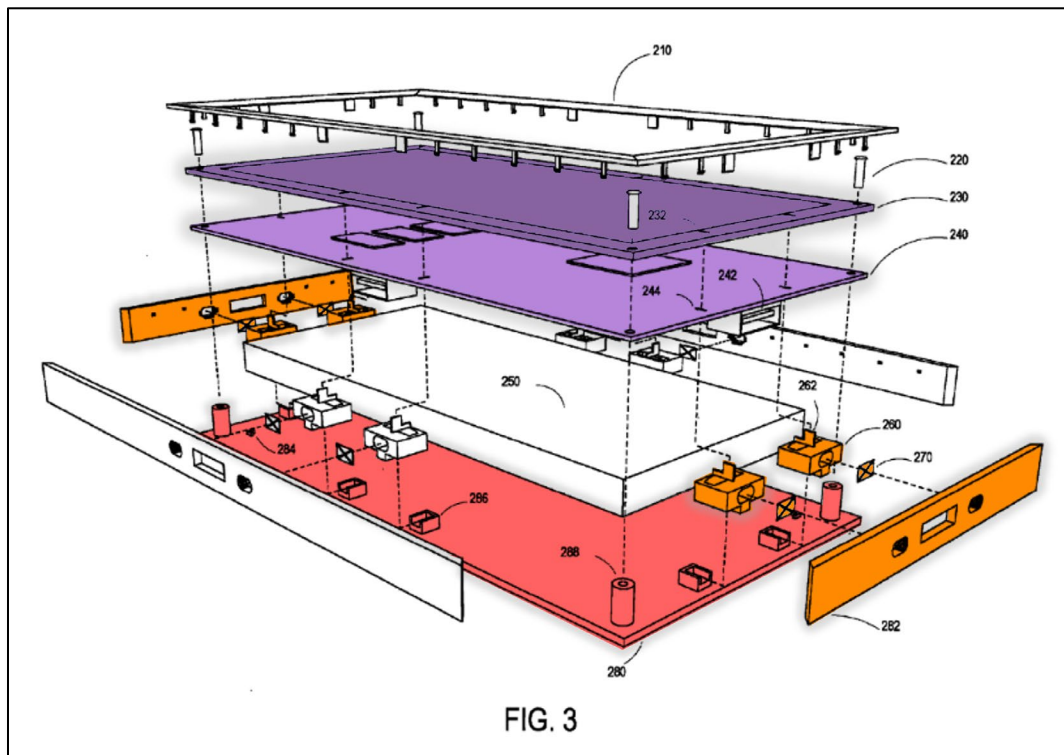


Fig. 3 (annotated)

464. Hirschman further disclosed that retention structures 260 were not a unitary part of chassis 280 (*i.e.*, were not “extruded from” the chassis). Hirschman instead disclosed that retention structures were “inserted into and secured by the brackets 286,” which brackets were “extruded from or attached to the surface of the chassis 280.” Hirschman (Ex. 1007) at ¶ 57. In other words, Hirschman

disclosed that retention structures 260 were attached to chassis 280 by insertion into bracket 286. A POSITA would have understood that by using a brackets to attach the retention structures (and thus the corresponding sidewall 282 connected to the retention structures, as described at ¶¶ 416–434 regarding limitation 1[b][1]) to the chassis 280, the retention structures may later be separated from the brackets, and thus that the retention structures and corresponding sidewall disengage from chassis 280. A POSITA would have understood several benefits from this arrangement, including the ability to gain access to interior components near the retention structure or sidewall for the purpose of repairing or replacing those components in the case of damage or malfunction, or for repair or replacement of the retention structures and sidewalls themselves.

465. Hirschman thus anticipated this limitation or rendered it obvious, under Gamevice’s understanding.

2. Claim 2: *The combination of claim 1, in which the rigid structural bridge supports electronics associated with the computing device.*

466. For the reasons discussed above at ¶¶ 410–465, Hirschman anticipated or rendered obvious the combination of claim 1, including a “rigid structural bridge” and a “computing device,” under Gamevice’s understanding of the claim.

467. Hirschman’s rigid structural bridge (chassis 280) also supported electronics associated with the computing device (circuitboard 240 and touch-

screen 230) under Gamevice's understanding. Hirschman disclosed receptacles 288 "extruded from" (*i.e.*, part of) chassis 280. Hirschman (Ex. 1007) at ¶ 57. The circuit board—which may include various components "such as a CPU, graphics processor, operating memory, communications busses, storage devices, and/or other equipment," Hirschman (Ex. 1007) at ¶ 56—and touch-screen are seated on receptacles: "The touch-screen 230 and circuitboard 240 may be secured by inserts 220, which may be received by receptacles 288." Hirschman (Ex. 1007) at ¶ 57. This arrangement is illustrated in Figure 3, shown below.

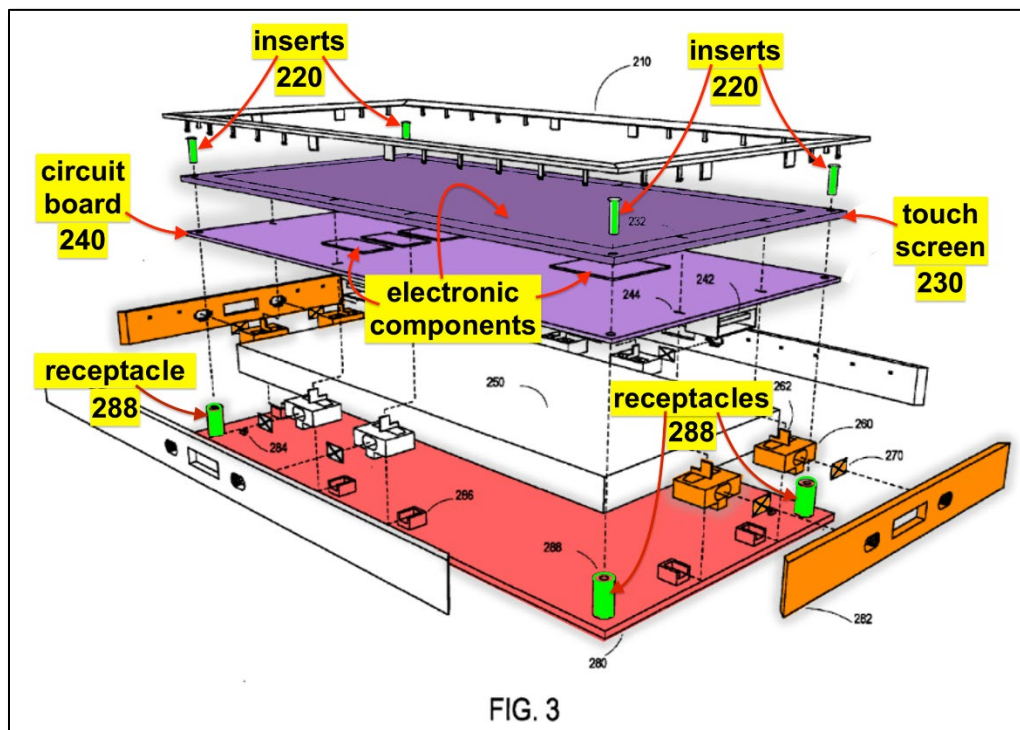


Fig. 3 (annotated)

468. As such, receptacles 288 of chassis 280 support the circuitboard 240, the circuitboard's associated electronics, and touch-screen 230.

469. Hirschman thus anticipated claim 2 or rendered it obvious, under Gamevice’s understanding of the claim.

3. **Claim 3:** *The combination of claim 2, in which the computing device further comprising a back, the back provides an internal surface, an external surface and cooperates with the at least two opposing sides of the computing device.*

470. For the reasons discussed above at ¶¶ 466–469, Hirschman anticipated or rendered obvious the combination of claim 2, including a “computing device” (circuitboard 240 and touch–screen 230), under Gamevice’s understanding of the claim.

471. Hirschman further disclosed that the computing device had a “back” under Gamevice’s understanding, namely circuitboard 240. Hirschman also disclosed that circuitboard 240 had an internal surface (the surface facing touch–screen 230) and an external surface (“underside of the circuitboard 240”), under Gamevice’s understanding. Hirschman (Ex. 1007) at ¶ 56. The “back” cooperated with (worked with) at least two opposing sides of the “computing device,” including, for example, by allowing the touch–screen 230 to “be electrically mated with [] circuitboard 240.” Hirschman (Ex. 1007) at ¶ 56. The “back” also cooperated with at least two opposing sides of the computing device by way of slots 242 on the opposing sides of the computing device, which allowed the computing device to be “secured” to retention structures 260. Hirschman (Ex. 1007) at Fig. 3, ¶ 57 (“Retention structures 260 may also secure the touch–screen

230 and circuitboard 240. The retention structures 260 may have a ‘dorsal fin’ structure 262, which may fit into slots 232 and 244. Other interlocking configurations for the retention structures 260 and slots 232 and 244 may be provided in other embodiments.”).

472. Hirschman thus anticipated claim 3 or rendered it obvious, under Gamevice’s understanding of the claim.

4. Claim 4: *The combination of claim 3, in which the rigid structural bridge cooperates with the back of the computing device.*

473. For the reasons discussed above at ¶¶ 470–472, Hirschman anticipated or rendered obvious the combination of claim 3 under Gamevice’s understanding of the claim.

474. For the same reasons that Hirschman anticipated or rendered obvious claim 2 under Gamevice’s understanding of that claim (as discussed above at ¶¶ 466–469), Hirschman anticipated or rendered obvious claim 4. That is, Hirschman disclosed that chassis 280 cooperated with (worked with) the “back” of the computing device (circuitboard 240) by supporting circuitboard 240 when it is seated on receptacles 288. Hirschman (Ex. 1007) at Fig. 3, ¶ 56.

5. **Claim 6:** *The combination of claim 4, in which the computing device comprises an electronic display screen, and wherein at least one electronic game control module of the pair of electronic game control modules passes signals through its corresponding communication link to the computing device, the signals passed to the computing device controlling images displayed on the electronic display screen of the computing device.*

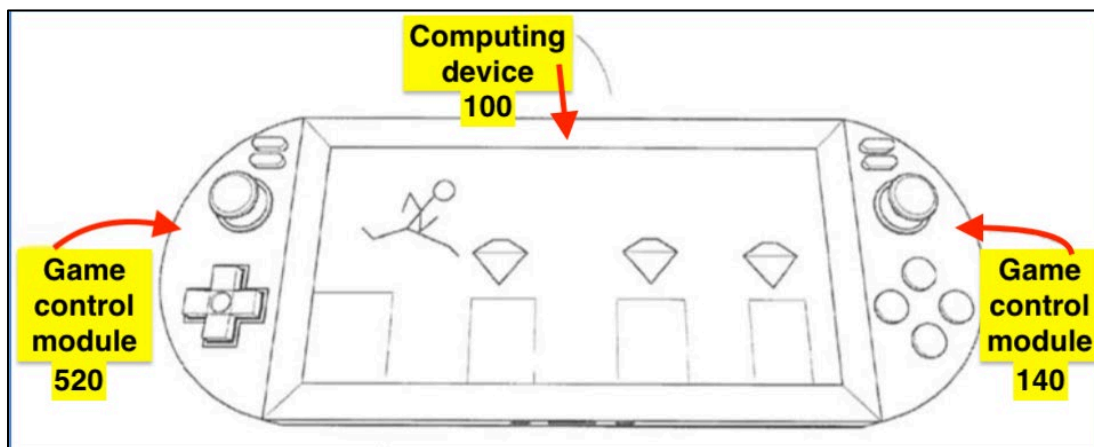
475. For the reasons discussed above (at ¶¶ 473–474), Hirschman anticipated or rendered obvious the combination of claim 4 under Gamevice’s understanding of the claim.

476. Additionally, Hirschman disclosed a computing device under Gamevice’s understanding (circuitboard 240 and touch-screen 230) that comprised an electronic display screen (touch-screen 230). Hirschman (Ex. 1007) at ¶ 56. Hirschman also disclosed “communication links,” “electronic game control modules,” and “signals” passed from “electronic game control modules” through “corresponding communication links” to the computing device, as described at ¶¶ 435–439, 447–448, 450–458, regarding Claim 1, limitations 1[b][2][a], [b], 1[c][2][b], 1[d][2], and 1[d][3].

477. Hirschman’s electronic game control modules (gaming accessories 140 and 520) included “common physical controls 522, including buttons, a joystick, and a d-pad.” Hirschman (Ex. 1007) at ¶ 67. Hirschman disclosed that the physical controls “may be used for video games” such as “first person shooters.” Hirschman (Ex. 1007) at ¶ 75. “In some embodiments, different accessory

orientations may be adapted for use with different games or types of games. For example, when playing games wherein an avatar may be directed in a left-to-right of movement while interacting with the game environment ..., a user may configure the computer system 100 as shown in FIG. 14A.” Hirschman (Ex. 1007) at ¶ 82. Figure 14A is shown below.

478. A POSITA would thus have understood that the “communication signals” sent from gaming accessories 140 and 520 to the “computing device” controlled images displayed on touch-screen 230, such as to “direct” movement of an avatar while interacting with game environment, as shown in Figure 14A (above). Hirschman (Ex. 1007) at ¶¶ 60, 82; Hirschman (Ex. 1007) at Fig. 14B, ¶¶ 75, 76.



Hirschman Fig. 14A (annotated) disclosing a pair of electronic game modules

479. Hirschman thus anticipated claim 6 or rendered it obvious under Gamevice’s understanding of the claim.

6. **Claim 7:** *The combination of claim 2, in which the electronics supported by the rigid structural bridge is a communication module associated with the computing device.*

480. For the reasons discussed above (at ¶¶ 466–469), Hirschman anticipated or rendered obvious the combination of claim 2, including “electronics supported by the rigid structural bridge,” under Gamevice’s understanding of the claim.

481. Hirschman disclosed that the electronics supposed by the structural bridge included circuitboard 240, “such as a CPU, graphics processor, operating memory, communications busses, storage devices, and/or other equipment.” Hirschman (Ex. 1007) at ¶ 56. A POSITA would have understood that, for example, “communications busses” constitute a “communication module.” Communication busses consist of data busses, address busses, and associated control circuitry which manages the transfer of data between various systems of a computer. A POSITA would have understood that in Hirschman, for example, data is sent from the game control modules to the CPU, and that this data indicates the player’s intentions in controlling the software application. The data is processed by the CPU to calculate program logic to determine results. Based on the outcome of those calculations, game data is sent from the CPU to the graphics processor, which performs calculations to convert the game data into display data, which is then sent to the touch-screen. The communication busses handle the real-time

transmission of millions of bytes per second to the various sub-modules of the system. Therefore, a POSITA would recognize “communication busses,” including their associated control hardware, to constitute a “communications module.”

482. Hirschman thus anticipated claim 7 or rendered it obvious under Gamevice’s understanding of the claim.

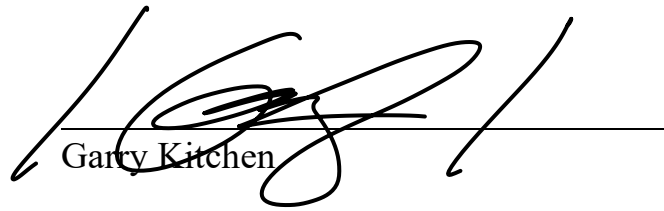
XI. CONCLUSION

483. For at least the preceding reasons, claims 1–7 of the ’393 patent are unpatentable pursuant to 35 U.S.C. §§ 102, 103.

484. This declaration is based on my present assessment of materials and information currently available to me. My investigation and assessment may continue, which may include reviewing documents and other information that may yet be made available to me. Accordingly, I expressly reserve the right to continue my study in connection with this case and to expand or modify my opinions and conclusions as my study continues.

485. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the petition for *inter partes* review.

Dated: March 6, 2023



Garry Kitchen

APPENDIX A

Garry E. Kitchen
SGK Service Inc.
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EDUCATION

Bachelor of Science, Electrical Engineering, 1980
Fairleigh Dickinson University, Teaneck, New Jersey
Eta Kappa Nu Honor Society, 1977-1980
Engineering Merit Scholarship - Matsushita Corp, 1978-1979

AFFILIATIONS

International Game Developers Association (IGDA)
Academy of Interactive Arts and Sciences (AIAS)
Institute of Electrical & Electronics Engineers (IEEE)
Eta Kappa Nu - Honor Society of the IEEE
National Academy of Television Arts & Sciences (NATAS)
Board of Advisors – National Videogame Museum (nvmusa.org)
Board of Advisors – Fairleigh Dickinson University School of the Arts
BOSSLEVEL - The World's Top 100 Game Developers (invitation only)
Elite Expert for IMS Expert Services, Pensacola, Florida
Guidepoint Global (FNA Vista Research - Society of Industrial Leaders)
Coleman Research Group

EXPERIENCE

- Conceived and led development of Nickelodeon's AddictingGames mobile app for iOS, which rose to #1 in the Apple app store within 72 hours of launch, becoming the most downloaded app in Viacom's history.
- 30+ years of technical management experience running game development companies, with an unmatched 17 years of management experience in Internet gaming.
- Hands-on technical and creative experience in all genres of game development, including console, PC retail and download, online, mobile and dedicated electronic.
- Leading Expert Witness for the video game industry, with over 30 years of experience in technical consulting on patent infringement, copyright, software development, and business issues for clients such as Nintendo, Sony Computer Entertainment, Zynga, Activision, Taito, and Hasbro (see **Expert Consulting Experience** section below).

EXPERIENCE

(cont'd)

- Strategic business planning - a history of anticipating and influencing industry trends with pioneering initiatives:
 - 1980** Reverse engineered the Atari 2600 in anticipation of the video game revolution
 - 1986** Established the 1st North American-based Nintendo development studio
 - 1996** Pioneered *Advergaming* with the launch of LifeSavers' Candystand.com
 - 2005** Applied dynamic in-game advertising technology to casual games
 - 2008** Repositioned Skyworks as leading iPhone publisher with over 25M downloads
- Expertise in developing comprehensive business plans, with application toward raising investment capital, through IPO or private equity placement.
- Recognized as an industry expert in video gaming by numerous trade conferences, including Digital Hollywood, iMedia Breakthrough, GDC, CES, Gamer Technology Conference, Casual Game Conference, Advertising in Games conference, VNU Digital Marketing conference, National Cable Show and the Qualcomm QTech conference.
- Experience in dealing with broadcast and print media, including CNBC, ABC Eyewitness News, CNN, Good Morning Atlanta, The Today Show, Business Week and various consumer and trade publications.
- Personally developed video game software products generating career retail sales in excess of \$350 million.
- Co-founded Skyworks Technologies, Inc., an industry pioneer in *Advergaming* - sponsorship-supported video games used as advertising vehicles. Skyworks was named a Top 50 Interactive Agency by Advertising Age for the years 2003 and 2004. Skyworks' client list included Nabisco/Kraft Foods, BMW, Toyota, Ford, PepsiCo, Campbell's, Fox Sports, CBS, Mattel, Weather Channel, Microsoft Network, Yahoo!, Miller Brewing Company, GlaxoSmithKline and MTV.
- Developed strategy and business plan for the Casual Games Network (CGN), Skyworks' initiative applying dynamic in-game advertising to online casual games, partnering with Massive Incorporated.

EXPERIENCE

(cont'd)

- Co-founded Absolute Entertainment, Inc., console game publisher licensed by Nintendo, Sega, Sony, 3DO and Atari and video game developer of over 100 marketed titles from 1986 to 1995, generating product retail sales of over \$300 million. Successfully lead Absolute through oversold IPO, raising \$12 million.
- Consulted for RCA David Sarnoff Research Labs (1986-1987) on entertainment applications of Digital Video Interactive (DVI), the first technology to store digital full-motion video on a CDROM.
- Designed & programmed Atari 2600 adaptation of hit arcade game Donkey Kong, 1982 wholesale revenues in excess of \$100 million on four million units sold.
- Conceived, designed and developed Bank Shot, an innovative electronic pool game marketed by Parker Brothers, named "10 Best Games of 1980", *Omni Magazine*.
- Reverse-engineered Atari 2600 game system in 1980, creating one of the first third party 2600-compatible game cartridges - Space Jockey.

EMPLOYMENT HISTORY

President/CEO

Audacity Games Inc, Danville/Folsom, California
March 2021 - Present

President/CEO

SGK Service Inc., Danville/Folsom, California
March 2007 - Present

Vice President Game Publishing

Viacom Media Networks, San Francisco, California
December 2010 - May 2012

Chief Operating Officer

Skyworks Interactive, Inc., Hackensack, New Jersey
December 2007 - September 2009

EMPLOYMENT HISTORY

(cont'd)

Chairman, President & CEO

Skyworks Technologies, Inc., Hackensack, New Jersey
November 1995 - December 2007

Chairman, President & CEO

Absolute Entertainment, Inc., Upper Saddle River, New Jersey
March 1986 - November 1995

Senior Designer

Activision, Inc., Mountain View, California
June 1982 - March 1986

Engineer/Designer

James Wickstead Design Associates, Cedar Knolls, New Jersey
April 1976 - October 1981

HONORS AND AWARDS

- U.S. Patent #8,407,090
Dynamic reassignment of advertisement placements to maximize impression count
Publication date – March 26, 2013
- 2012 Official *WEBBY AWARD* Honoree - Games (Handheld Devices)
AddictingGames Mobile for iOS platform
International Academy - Digital Arts & Sciences WEBBY AWARDS - 2012
- Nomination to *Board of Advisors*
Video Game History Museum (www.vghmuseum.org) - 2010
- Nomination as an *Elite Expert* by IMS Expert Services
IMS Expert Services (www.ims-expertservices.com) - 2009
- Nomination to the Advisory Committee: "Reinventing Advertising: VOD, PVR, Broadband, Games, PODs & Mobile Consortium"
Digital Hollywood - 2005, 2006

HONORS AND AWARDS

(cont'd)

- 2004 Nominee – *Advergame of the Year*
The BMI X3 Adventure
Billboard Digital Entertainment Awards (DECA)
- Lifetime Achievement Award in Video Games
Classic Gaming Expo – 2003
- New Jersey Entrepreneur of the Year - Finalist
Inc. Magazine, Merrill Lynch and Ernst & Young - 1993
- Best Simulation Game
Super Battletank
Game Informer Magazine - 1992
- Sega Seal of Quality Award Nominee - Best Flying/Driving Genesis
Super Battletank
Sega of America - 1992
- Lifetime Achievement Award in Video Games
The Doctor Fad Show
Syndicated educational television program - 1990
- Video Game Designer of the Year
Computer Entertainer Magazine - 1985
- Best Creativity Product - Nominee
Garry Kitchen's GameMaker
SPA Excellence in Software - 1985
- Video Game of the Year - Certificate of Merit
Keystone Kapers
Electronic Games Magazine - 1983
- U.S. Patent #4,346,892
Electronic Pool Game
Bank Shot – handheld game marketed by Parker Brothers - 1981
- Ten Best Games of 1980
Bank Shot
OMNI Magazine - 1980

Garry E. Kitchen

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HONORS AND AWARDS

(cont'd)

- The Games 100 - The Top 100 Games of 1980

Bank Shot

Games Magazine – 1980

- Engineering Merit Scholarship

Panasonic / Matsushita Corporation of Japan

Fairleigh Dickinson University - 1978, 1979

SOFTWAREOLOGY

<u>TITLE</u>	<u>PLATFORM</u>	<u>YEAR</u>	<u>PUBLISHER/ LICENSEE</u>	<u>ROLE</u>
Wildfire	Electronic Toy	1979	Parker Brothers	Software
Bank Shot	Electronic Toy	1980	Parker Brothers	Design/Software
Space Jockey	Atari 2600	1980	U.S. Games	Design/Software
3D Supergraphics (with P. Lutus)	Apple II	1980	United Software of America	Assembly Language demos
Reversal	Atari 400/800	1981	Hayden Publishing	Atari conversion from Apple II
Bellhop	Apple II	1982	Hayden Publishing	Co-design/Software
Donkey Kong	Atari 2600	1982	Coleco	Software
Keystone Kapers	Atari 2600	1983	Activision	Design/Software
Pressure Cooker	Atari 2600	1983	Activision	Design/Software
Crackpots	Atari 2600	1983	Activision	Software
Ghostbusters	Atari 2600	1985	Activision	Software
Kung Fu Master	Atari 2600	1987	Activision	Art/Software
Pete Rose Baseball	Atari 2600	1988	Absolute	Co-design/Software
The Designer's Pencil	C64	1984	Activision	Design/Software
Ghostbusters	C64	1984	Activision	Additional Software
Garry Kitchen's GameMaker	C64	1985	Activision	Design/Software
Crossbow	C64	1986	Absolute	Co-design/Software
Stealth ATF	NES	1989	Activision	Co-design/Software
A Boy and His Blob	NES	1990	Absolute	Co-design/Software
Battletank	NES	1990	Absolute	Design/Software
Destination Earthstar	NES	1990	Acclaim	Co-design/Software
The Simpsons: Bart vs the Space Mutants	NES	1991	Acclaim	Co-design/Software
Home Alone	SNES	1992	THQ	Co-design/Software
Super Battletank: War in the Gulf	SNES	1992	Absolute	Design/Software
The Simpsons: Bart vs the World	NES	1992	Acclaim	Co-design/Software
Klondike Solitaire	SEGA Channel	1995	SEGA	Co-design/Art
Super Battletank 2	SNES	1993	Absolute	Co-design/Software
LifeSavers Chomp	CDROM	1996	LifeSavers	Co-design/Software
Candystand Yipes Hang Gliding	Web/online	1997	LifeSavers	Design/Software
Candystand Yipes Skate Race	Web/online	1997	LifeSavers	Design/Software
Candystand Video Poker	Web/online	1997	LifeSavers	Design/Software

Candystand Yipes Coloring Book	Web/online	1997	LifeSavers	Design/Software
Candystand Grafitti Contest	Web/online	1997	LifeSavers	Design/Software
Candystand Where in the world...	Web/online	1997	LifeSavers	Design/Software
Bet Your Lifesavers TV Trivia	Web/online	1997	LifeSavers	Design/Software
Candystand Snowboarding	Web/online	1997	LifeSavers	Design/Software
Nabisco Chipulator	Web/online	1997	Nabisco	Design/Software
Bubble Yum Screensaver	Web/online	1998	LifeSavers	Design/Software
Candystand Gummiworks Construction Kit	Web/online	1998	LifeSavers	Design/Software
Ford Basketball Shootout	Web/online	1998	Ford	Design/Software
H.O.R.S.E. Basketball Shootout	Web/online	1998	Sportcut	Design/Software
Bet Your Lifesavers '80s TV Trivia	Web/online	1998	LifeSavers	Design/Software
Fruit Stripe Puzzle game	Web/online	1999	LifeSavers	Design/Software
Ford Fallout	Web/online	1999	Ford	Design/Software
Premium Jigsaw Puzzle Palace	Web/online	1999	Nabisco	Design/Software
Nabiscoworld Ball Toss	Web/online	1999	Nabisco	Design/Software
Nabiscoworld Holiday House	Web/online	1999	Nabisco	Design/Software
Nabiscoworld Greeting Cards	Web/online	1999	Nabisco	Design/Software
S.I. H.O.R.S.E. Basketball Shootout	Web/online	1998	CNN/SI	Design/Software
Candystand Flavor Factory	Web/online	2000	LifeSavers	Design/Software
Candystand 2 Minute Drill	Web/online	2000	LifeSavers	Design/Software
Cornnuts Nuttin' But Net	Web/online	2000	Nabisco	Design/Software
Bell Atlantic Nothing But Net	Web/online	2000	Bell Atlantic	Design/Software
Home Run Derby	Web/online	2001	Century 21	Design/Software
Big League Bash	Web/online	2001	Fox Sports	Design/Software
Kraft Puzzle Maker	Web/online	2001	Kraft	Design/Software
GSK Trivia	CDROM	2001	GSK	Design/Software
Stars Academy Mess of Mass	Web/online	2001	Stars Academy	Design/Software
Stars Academy Space Trivia	Web/online	2001	Stars Academy	Design/Software
GSK Coloring Book	Web/online	2001	GSK	Design/Software
Big Barney Chase board game	Web/online	2001	Kraft/Post	Design/Software
Mission Code Red	Web/online	2001	Pepsi	Design/Software
Trolli Kaboom	Web/online	2002	LifeSavers	Design/Software
Candy Drops	Web/online	2002	LifeSavers	Design/Software
Smack Dab in the Middle	Web/online	2002	Nabisco	Design/Software
Intelsat Satellite game	CDROM	2002	Intelsat	Design/Software
Red & Ned racing	Web/online	2002	Kraft	Design/Software
Tombstone Racer	Web/online	2003	Tombstone Pizza	Design/Software
Barney Spy Caper	Web/online	2005	Kraft/Post	Software
Dandy Drops	Web download	2004	Skyworks	Design/Software

VU Role Playing Game	Web/online	2004	LifeSavers	Design/Software
Acrobats	Web/online	2004	Nabisco	Design/Software
Air Hockey	Web/online	2004	LifeSavers	Design/Software
Poker Puzzle	Web/online	2004	Nabisco	Design/Software
Board Game of Life	Web/online	2004	Fidelity	Design/Software
Swap and Drop	Web/online	2004	Weightwatchers	Design/Software
Craver Catch	Web/online	2005	Kraft/Post	Design/Software
Acrobats Deluxe	Web download	2005	Skyworks	Design/Software
March of the Penguins	DS	2006	DSI	Design
Grind and Grab	Web/online	2006	LifeSavers	Design/Software
Spiderman City game	Web/online	2007	Kraft/Nabisco	Design/Software
Arcade Hoops	iOS	2008	Skyworks	Co-design/Software
Arcade Bowl	iOS	2008	Skyworks	Software
Air Hockey	iOS	2009	Skyworks	Design
World Cup Table Tennis	iOS	2009	Skyworks	Exec Producer/Design
Match 3 Poker	iOS	2009	Skyworks	Design/Software
Skyscrapers	iOS	2009	Skyworks	Design/Software
Iron Horse	iOS	2010	AppStar Games	Co-design
Fling Pong	iOS	2010	AppStar Games	Design/Software
Leslie West String Benda'	iOS	2010	AppStar Games	Co-design
Jelly Cannon	iOS	2012	Nickelodeon	Executive Producer
Addicting Games	iOS	2012	Nickelodeon	Exec Producer/Design
Scribble Hero	iOS	2012	Nickelodeon	Executive Producer
Circus Convoy	Atari 2600	2021	Audacity Games	Co-designer/Art

WRITTEN PUBLICATIONS

"Atari 2600 / 7800: A Visual Compendium" Foreword, Copyright 2019, Bitmap Books

[Medium.com](#)

"How I Spent My Summer of 1982: The making of Donkey Kong for the Atari 2600", October 28, 2020

"My Strangest Business Deal Ever: What's the name of a \$66M aircraft really worth?" October 29, 2020

"How I fixed Atari's Awful Music: And Got Over My Fear of Out-of-Tune Game Toons", November 8, 2020

"The Voice Scrambling Helmet: Adventures in Toy Design: Part 1", November 11, 2020

"Designing an Electronic Toy – Wildfire Pinball", November 27, 2020

"It's just an electronic toy, officer: Adventures in Toy Design: Part 2", November 30, 2020

"The Origins of Computer Mahjong: The amazing story of its development." December 18, 2020

"Activision, Atari, Absolute: How Video Game Companies Once Gamed the Alphabet for an Inside Joke: Notes from a retro game designer", January 4, 2021

"The товарищи (comrades) across the hall: My first job (1969) – NYC, teletypes and espionage", February 2, 2021

"What's Under those PW Dots? I don't like when my computer hides things from me.", February 4, 2021

Geoffrey the Giraffe and the Tale of Two Cheeks: The Story of the Crossbow Home Video Game", February 8, 2021

EXPERT CONSULTING EXPERIENCE

PAST 5 YEARS – report/declaration, deposition, court testimony

Year	Law Firm	Client	Case	Description	Report/ Declaration	Deposition	Court Testimony
2022- 2023	Ellis George Cipollone	Ragnarok Game, LLC	Ragnarok Game, LLC and ESDFOS, LLC v. Nine Realms, Inc. dba Human Head; Bethesda Softworks LLC; Zenimax Media Inc.; et al Central District of California, Case No. 19STCV43434	Video game related litigation	√	√	
2022	Sidley Austin LLP	Microsoft Corporation	WSOU Investments, LLC, d/b/a Brazos Licensing & Development v. Microsoft Corporation Western District of Texas, Case Nos. 6:20-cv-00457- ADA & 2:16-cv-457	Patent litigation re: U.S. Patent No. 8,965,978	√		
2022	ERISE IP	FanDuel, Inc. (petitioner)	Betfair Interactive US, LLC d/b/a FanDuel et al. v. Beteiro, LLC IPR petition (PTAB- IPR2023-00095)	U.S. Patent 10,255,755, U.S. Patent 10,147,266, U.S. Patent 10,043,341, U.S. Patent 9,965,920	√		
2021- 2022	LimNexus LLP	Sony Interactive Entertainment	SMobile v. Sony Computer Entertainment America LLC et al. American Arbitration Association, Case No. 01-20- 0019-3327	Video game related litigation	√		√ (arbitration)
2021- 2022	Pillsbury Winthrop Shaw Pittman LLP	Disney Interactive Studios, Inc.	VRtoysone, LLC et al. v. Disney Interactive Studios, Inc. Central District of California, Case No. 2:19-cv-00742- CBM-AS	Patent litigation re: U.S. Patent No. 6,460,851	√		
2021-	Quinn Emanuel Urquhart & Sullivan, LLP	Skillz Platform Inc.	Skillz Platform Inc. v. AviaGames Inc. Northern District of California, Case No. 5:21-cv- 02436-BLF	Patent litigation			
2022	Morrison Foerster LLP	Kahoot!	Aviel D. Rubin, v. Kahoot! ASA et al. Western District of Texas, Case No. 6:22-CV-236	Patent litigation re: U.S. Patent 9,064,376			

2021	Morrison Foerster LLP	Kahoot!	Kahoot! v. TimePlay Inc. IPR petition (PTAB)	U.S. Patent 9,675,879, U.S. Patent 9,675,880, U.S. Patent 9,643,083	√		
2021-2022	Preg O'Donnell & Gillet PLLC	The City of Tacoma	The Estate of Wesley A. Evans et al. v. The City of Tacoma et al. Superior Court of Washington (Pierce County), Case No. 20-2-07562-6	Video game related litigation	√		
2021	Confidential	Confidential	Confidential	Litigation			
2021-2022	Pinsent Masons LLP	Oovee Limited	Oovee Limited v. S3D Interactive, Inc. London Court of International Arbitration, LCIA Arb. No. 204597	Video game related litigation	√		
2021	Standley Law Group LLP	Shoot-A-Way, Inc.	Shoot-A-Way, Inc. v. Airborne Athletics, Inc. American Arbitration Association, Columbus, Ohio, Case No. 01-21-0001-9333	Patent litigation	√	√	√ (arbitration)
2020-2021	Faegre Drinker Biddle & Reath LLP	Microsoft Corporation	Worlds Inc. v. Microsoft Corporation Western District of Texas, Case No. 6:20-cv-00872-ADA	Patent litigation			
2020-2021	ERISE IP	Spin Master Ltd	Spin Master Inc. v. Interactive Play Devices LLC IPR petition (PTAB), Case No. IPR2021-00316	U.S. Patent No. 9,868,072	√		
2020-2021	Latham & Watkins LLP	Supercell Oy	Supercell Oy v. Gree, Inc. IPR petition (PTAB), Case No. IPR2021-00499	U.S. Patent No. 10,039,977, U.S. Patent No. 9,539,517, U.S. Patent No. 10,369,464	√		
2020-2021	ARDENT LAW GROUP PC	Snail Games USA	Jeremy Wood et al. v. Snail Games USA, Inc. et al. JAMS Arbitration, Irvine, California, Case No. 1200054734	Video game-related contractual matter	√		√ (arbitration)
2020-	Quinn Emanuel Urquhart & Sullivan, LLP	NetEase Inc., NetEase Information Technology Corporation, and Hong Kong NetEase Interactive Entertainment Limited	NetEase Inc. et al. v. PUBG Corporation et al. California Superior Court (San Mateo County), Case No. 20-civ-01382	Video game-related contractual matter	√		

2020	Duane Morris LLP	LEGO Systems, Inc., LEGO Brand Retail, Inc., Warner Bros. Home Entertainment Inc. and WB Games Inc.	MQ Gaming, LLC et al. v. Lego Systems, Inc. et al. District of Delaware, Case No. 1:19-cv-00905-MN	Various IPRs, Interactive-toy related patent litigation	√		
2020	ERISE IP	Sony Interactive Entertainment LLC	Sony Interactive Entertainment LLC, Petitioner, v. BOT M8, LLC IPR petition (PTAB), Case No. IPR2020-00963	U.S. Patent No. 7,338,363, U.S. Patent No. 7,497,777	√		
2020-2021	California Dept. of Justice	State of California Franchise Tax Board	Confidential	Video game-related tax matter	√	√	
2020	Lewis Brisbois Bisgaard & Smith LLP	Suzhou Snail Digital Technology Co. Ltd.	Suzhou Snail Digital Technology Co. Ltd. v. Fox Digital Entertainment, Inc. et al. Central District of California, Case No. 2:17-cv-07113-PSG-FFM	Video game-related contract dispute	√	√	
2020	Sheppard Mullin, Richter & Hampton LLP	Confidential	Confidential	Video game-related arbitration	√	√	√ (arbitration)
2019-2020	ERISE IP	Sony Interactive Entertainment LLC	Infernal Technology, LLC et al. v. Sony Interactive Entertainment America, LLC Eastern District of Texas, Case No. 2:19-cv-248	Patent litigation	√		
2019-2021	Morgan, Lewis & Bockius LLP	Banilla Games Inc.	Savvy Dog Systems, LLC et al. v. Pennsylvania Coin, LLC et al. Middle District of Pennsylvania, Case No. 3:19-cv-01470-JPW	Covered Business Method review of U.S. Patent No. 7,736,223	√		
2019	Kirkland & Ellis LLP	Apple Inc.	Social Technologies LLC v. Apple Inc. Northern District of California, Case No. 3:18-cv-05945-VC	Trademark infringement case	√	√	
2019	ERISE IP	Fanduel, Inc.	CG Technology Development, LLC et al. v. Fanduel, Inc. District of Delaware, Case No. 17-1041-RGA-CJB	Software-related patent infringement case	√	√	

2018-2020	Quinn Emanuel Urquhart & Sullivan, LLP	AM General LLC	AM General LLC v. Activision Blizzard, Inc. et al. Southern District of New York, Case No. 17-cv-08644-GBD	Copyright and trademark infringement case	√		
2018-2019	Wong & Leow LLC	David Ian Storey	David Ian Andrew Storey v. Planet Arkadia Pte. Ltd. et al. High Court of The Republic of Singapore, Case No. HC/S 1092/2015	MMORPG contractual dispute/ copyright infringement case	√	√	
2018	Behaviour Interactive	Behaviour Interactive	Bethesda Softworks LLC v. Behaviour Interactive, Inc. et al. D. Maryland, Case No. 8:18-cv-01846-PX	Pre-litigation analysis for software developer re: copyright infringement case	√		
2018	ERISE IP	Ubisoft, Inc.	Uniloc USA, Inc. et al. v. Ubisoft, Inc. Eastern District of Texas, Marshall Division, Case No. 2:16-cv-781	Software-related patent infringement case			
2018-2023	Quinn Emanuel Urquhart & Sullivan, LLP	NetEase, Inc., NetEase Information Technology Corporation and Hong Kong NetEase Interactive Entertainment Limited	PUBG Corporation et al. v. NetEase, Inc. et al. Northern District of California, Case No. 4:18-cv-02010-JSW	Video game-related copyright infringement case	√		
2020-2023	Perkins Coie LLP	Nintendo of America Inc.	Nintendo of America Inc. v. Gamevice Inc. IPR petition (PTAB), Case No. IP2020-01172, Case TBD	U.S. Patent 10,391,393 and U.S. Patent TBD	√		
2019-2020	Perkins Coie LLP	Nintendo Co. Ltd., and Nintendo of America Inc.	Gamevice, Inc. v. Nintendo Co., Ltd. et al. Northern District of California, Case No. 3:18-cv-1942-RS.	Patent infringement litigation.	√	√	
2018	Sidley Austin LLP	Riot Games, Inc.	Paltalk Holdings, Inc. v. Riot Games, Inc. (pre-litigation)	MOBA-related patent infringement case			
2018	Latham & Watkins LLP	Harmony Gold U.S.A. Inc.	Harmony Gold U.S.A. Inc., Plaintiff, v. Harebrained Schemes LLC, et al. Western District of Washington, Case No. 2:17-cv-00327-TSZ	Copyright infringement case			
2018-2021	Manatt, Phelps & Phillips LLP	Ironburg Inventions Ltd.	Ironburg Inventions Ltd. v. Valve Corporation Northern District of Georgia, Case No. 1:15-cv-04219	Game controller-related patent infringement case	√	√	√

2018	Morrison Foerster LLP	Lego Systems, Inc. and Warner Bros. Interactive Entertainment, Inc.	Lego Systems, Inc. et al. v. FigureFun LLC IPR petition (PTAB), IPR2018-00754	Video game-related patent IPR	√		
2018	Morrison Foerster LLP	Lego Systems, Inc. and Warner Bros. Interactive Entertainment, Inc.	FigureFun LLC v. Lego Systems, Inc. et al. Eastern District of Texas, Case No. 2:17-cv-182-JRG	Video game-related patent litigation	√		
2015-2018	Quinn Emanuel Urquhart & Sullivan, LLP	uCool, Inc.	Blizzard Entertainment, Inc. et al. v. Lilith Games (Shanghai) Co. Ltd. et al. Northern District of California, Case No. 3:15-cv-04084-CRB	Video game related copyright infringement case.	√		