UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF FLORIDA
TAMPA DIVISION

DOK SOLUTION LLC, a Florida limited liability company,

Plaintiff,

vs. **Case No.: _____**

FKA DISTRIBUTING CO., Michigan limited liability company d/b/a HMDX, BED BATH & BEYOND, INC., a Foreign Corporation, BEST BUY CO. OF MINNESOTA, INC., a Foreign Corporation, KOHL'S DEPARTMENT STORES, INC., a Foreign Corporation, AMAZON.COM.DEDC, LLC., a Foreign corporation, NEWEGG, INC., a Delaware corporation, OFFICEMAX, INCORPORATED, a Foreign corporation, SONIC ELECTRONIX, INC., a California corporation, SUPERWAREHOUSE BUSINESS PRODUCTS, INC., a Florida corporation,

Defendants. **JURY TRIAL DEMANDED**

_____/

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff DOK SOLUTION LLC files this Complaint (the "Complaint") against Defendants, FKA DISTRIBUTING CO., LLC, Michigan limited liability company d/b/a HMDX, BED BATH & BEYOND, INC., a Foreign Corporation, BEST BUY CO. OF MINNESOTA, INC., a Foreign Corporation, KOHL'S DEPARTMENT STORES, INC., a Foreign Corporation, AMAZON.COM.DEDC, LLC., a Foreign corporation, NEWEGG, INC., a Delaware corporation, OFFICEMAX, INCORPORATED, a Foreign corporation, SONIC ELECTRONIX, INC., a California corporation, SUPERWAREHOUSE BUSINESS PRODUCTS, INC., a Florida

corporation, (collectively referred to as "Defendants"), and in support of this Complaint alleges the following:

PARTIES

1. Plaintiff DOK SOLUTION LLC (hereinafter "DOK") is a Florida limited liability company having its principal place of business at 1185 Gooden Crossing, Largo Florida.

2. FKA DISTRIBUTING CO., LLC is a Michigan limited liability company d/b/a HMDX and (hereinafter "HMDX"), having its principal place of business at 3000 Pontiac Trail, Commerce Township, Michigan 48390.

3. Defendant BED BATH & BEYOND, INC. is a foreign corporation licensed to do business in Florida, having its principal place of business at 650 Liberty Avenue, Union, NJ 07083.

4. Defendant BEST BUY CO. OF MINNESOTA, INC. is a foreign corporation licensed to do business in Florida, having its principal place of business at 7601 Penn Avenue S., Richfield, MN 55423.

5. Defendant KOHL'S DEPARTMENT STORES, INC. is a foreign corporation licensed to do business in Florida, having its principal place of business at 129 Orange Street, Wilmington, DE 19801.

6. Defendant AMAZON.COM.DEDC, LLC, is a foreign limited liability company licensed to do business in Florida, having its principal place of business at 410 Terry Avenue North, Seattle, WA 98109.

7. Defendant NEWEGG, INC. is a Delaware corporation, having its principal place of business at 16839 E. Gale Avenue, Industry, CA 91745.

8. Defendant OFFICEMAX INCORPORATED is a foreign corporation licensed to do business in Florida, having its principal place of business at 263 Shuman Blvd., Naperville, IL 60563.

9. Defendant SONIC ELECTRONIX, INC. is a California corporation, having its principal place of business at 28340 Avenue Crocker, Suite 202, Valencia, CA 91355.

10. Defendant SUPERWAREHOUSE BUSINESS PRODUCTS, INC. a Florida corporation, having its principal place of business at 3400 SW 26th Terrace, Suite A-8, Fort Lauderdale, FL 33312.

JURISDICTION AND VENUE

11. This action arises under the patent laws of the United States, 35 U.S.C. §§ 271, 281, and 283, among others.

12. This Court has subject matter jurisdiction over the patent claims under 28 U.S.C. §§ 1331 and 1338(a).

13. Defendants, FKA DISTRIBUTING CO., LLC a Michigan limited liability company, NEWEGG, INC. a Delaware corporation, and SONIC ELECTRONIX, INC. a California corporation do not maintain a registered agent for service of process in Florida; however, they are subject to long-arm jurisdiction in this state under Section 48.193, Florida Statutes, because they conducted, engaged in, or carried on a business venture in this state, had substantial, continuous, and systematic business contacts with Florida customers, and committed a tortious act within this state. As a result, and by operation of law, these Defendants have designated Florida's Secretary of State as its agent for service of process pursuant to F.S. §48.151(5).

14. Venue is proper in the district by virtue of 28 U.S.C. §§ 1391 and 1400 because, on information and belief, Defendants' acts of infringement took place and are taking place within this jurisdiction. In addition, Defendants either reside in this District, can be found in this District, or are otherwise subject to personal jurisdiction in the District by making, using, selling, offering for sale, or importing infringing product in this district, and/or inducing and contributing to infringement in this district.

GENERAL ALLEGATIONS

15. DOK is the owner of all right, title, and interest in the following United States Patents: U.S. Patent No. 7,742,293 (the "'293 patent"); U.S. Patent No. 8,116,077 (the "'077 patent"); U.S. Patent No. 8,432,667 (the "'667 patent"); U.S. Patent No. 8,593,804 (the "'804 patent"); and, U.S. Patent No. 8,675,356 (the "'356 patent").

16. On June 22, 2010, the '293 patent entitled, "Adaptable Digital Music Player Cradle," was duly and properly issued by the U.S. Patent and Trademark Office (the "USPTO") to Jack Strauser, the sole inventor name therein. A copy of the '293 patent is attached hereto as ***Exhibit A***.

17. On February 14, 2012, the '077 patent entitled, "Digital Music Player Cradle Attachment," was duly and properly issued by the UPSTO to Jack Strauser, the sole inventor named therein. A copy of the '077 patent is attached hereto as ***Exhibit B***.

18. On April 30, 2013, the '667 patent entitled, "System, Method and Apparatus for Supporting and Providing Power to a Music Player," was duly and properly issued by the UPSTO to Jack Strauser, the sole inventor named therein. A copy of the '667 patent is attached hereto as ***Exhibit C***.

19. On November 26, 2013, the '804 patent entitled, "System, Method and Apparatus for Holding Multiple Devices," was duly and properly issued by the UPSTO to Jack Strauser, the sole inventor named therein. A copy of the '804 patent is attached hereto as ***Exhibit D***.

20. On March 18, 2014, the '356 patent entitled, "System, and Method for Holding and Powering Three Consumer Electronic Devices," was duly and properly issued by the UPSTO to Jack Strauser, the sole inventor named therein. A copy of the ''356 patent is attached hereto as ***Exhibit E***.

21. The '293, '077, '667, '804 and '356 patents (collectively referred to as the "DOK Patents") and the right to sue for their infringement, past and present, have all been assigned to DOK, as per the attached Patent Assignment attached hereto as ***Exhibit F***.

22. DOK sells and offers for sale a line of products utilizing the DOK Patents, in their design and function. For example, see http://www.easy-doks.com.

23. The subject matter of the DOK Patents generally relate to docks or cradles that support and/or charge one or more portable electronic devices.

24. Defendants are directly and/or indirectly infringing and/or inducing others to infringe by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, products or processes that practice one or more claims in the DOK Patents.

25. For example, Defendants infringe and continue to infringe, by manufacturing, selling, offering for sale, and/or importing its HMDX JAM ZZZ Bluetooth Alarm Clock (the "JAM ZZZ Alarm Clock"), which comes within the scope of one or more of the DOK Patents without authority or license from Plaintiff. See attached owner's manual for the aforesaid device, ***Exhibit G***.

26. On information and belief, Defendants were aware of and/or analyzed the DOK Patents. In addition, Defendants were placed on notice of DOK's infringement claims at least as of the filing of the original Complaint in this action. A copy of a letter sent to Defendants is attached hereto as ***Exhibit H***.

27. On Defendants' gaining knowledge of the DOK Patents, it was apparent to Defendants that, *inter alia*, the JAM ZZZ Alarm Clock infringes the DOK Patents.

28. On information and belief, on Defendants' gaining knowledge of the DOK Patents, Defendants have opted to continue their willful, deliberate, and intentional infringement of one or more claims of the DOK Patents at least by using, selling and/or offering to sell the JAM ZZZ Alarm Clock both before and after the filing of the original Complaint in this action and in reckless disregard of the claims of DOK's Patents.

29. Defendants have acted despite an objectively high likelihood that their actions constitute an infringement of DOK Patents. In addition, the risk of infringement was either known by Defendants or so obvious to them that they should have known the risk.

30. The presence of infringing devices in the United States interferes with the ability of DOK to market its products in the United States and/or to grant sublicenses of its patents.

31. The claims against the Defendants arise out of the same transactions and occurrences and involve questions of law and fact common to all defendants.

32. Defendants have profited through infringement of the DOK Patents.

33. As a result of Defendants' unlawful infringement of the DOK Patents, DOK has suffered and will continue to suffer damage.

34. DOK is entitled to recover from Defendants the damages suffered by DOK as a result of Defendants' unlawful acts.

35. On information and belief, Defendants' infringement of one or more of the DOK Patents is willful and deliberate, entitling DOK to enhanced damages and reasonable attorney's fees and costs.

36. On information and belief, Defendants intend to continue their unlawful infringing activity, and DOK continues to and will continue to suffer irreparable harm – for which there is no adequate remedy at law – from such unlawful infringing activity unless this Court enjoins Defendants' infringing activity.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 7,742,293

37. Plaintiff incorporates by reference each and every allegation of paragraphs 1 through 36 as if set forth fully herein.

38. The '293 patent is valid and fully enforceable.

39. DOK is the Assignee of all rights title and interest in the '293 patent.

40. On information and belief, Defendants have been and/or are directly infringing and/or inducing infringement of and/or contributorily infringing the '293 patent by, among other things, making, using, offering to sell or selling in the United States, or importing into the United States, products and/or services that are covered by the claims of the '293 patent, including, by way of example and not limitation, the JAM ZZZ Alarm Clock.

41. The amount of money damages that Plaintiff has suffered due to Defendants' acts of infringement cannot be determined without an accounting; however, Plaintiff is entitled to at least a reasonable royalty for all infringing JAM ZZZ Alarm Clocks made, imported sold and/or offered for sale, by Defendants.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 8,116,077

42. Plaintiff incorporates by reference each and every allegation of paragraphs 1 through 36 as if set forth fully herein.

43. The '077 patent is valid and fully enforceable.

44. DOK is the Assignee of all rights title and interest in the '077 patent.

45. On information and belief, Defendants have been and/or are directly infringing and/or inducing infringement of and/or contributorily infringing the '077 patent by, among other things, making, using, offering to sell or selling in the United States, or importing into the United States, products and/or services that are covered by the claims of the '077 patent, including, by way of example and not limitation, the JAM ZZZ Alarm Clock.

46. The amount of money damages that Plaintiff has suffered due to Defendants' acts of infringement cannot be determined without an accounting; however, Plaintiff is entitled to at least a reasonable royalty for all infringing JAM ZZZ Alarm Clocks made, imported sold and/or offered for sale, by Defendants.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 8,432,667

47. Plaintiff incorporates by reference each and every allegation of paragraphs 1 through 36 as if set forth fully herein.

48. The '667 patent is valid and fully enforceable.

49. DOK is the Assignee of all rights title and interest in the '667 patent.

50. On information and belief, Defendants have been and/or are directly infringing and/or inducing infringement of and/or contributorily infringing the '667 patent by, among other things, making, using, offering to sell or selling in the United States, or importing into the United

States, products and/or services that are covered by the claims of the '667 patent, including, by way of example and not limitation, the JAM ZZZ Alarm Clock.

51. The amount of money damages that Plaintiff has suffered due to Defendants' acts of infringement cannot be determined without an accounting; however, Plaintiff is entitled to at least a reasonable royalty for all infringing JAM ZZZ Alarm Clocks made, imported sold and/or offered for sale, by Defendants.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 8,593,804

52. Plaintiff incorporates by reference each and every allegation of paragraphs 1 through 36 as if set forth fully herein.

53. The '804 patent is valid and fully enforceable.

54. DOK is the Assignee of all rights title and interest in the '804 patent.

55. On information and belief, Defendants have been and/or are directly infringing and/or inducing infringement of and/or contributorily infringing the '804 patent by, among other things, making, using, offering to sell or selling in the United States, or importing into the United States, products and/or services that are covered by the claims of the '804 patent, including, by way of example and not limitation, the JAM ZZZ Alarm Clock.

56. The amount of money damages that Plaintiff suffered due to Defendants' acts of infringement cannot be determined without an accounting; however, Plaintiff is entitled to at least a reasonable royalty for all infringing JAM ZZZ Alarm Clocks made, imported sold and/or offered for sale, by Defendants.

COUNT V
INFRINGEMENT OF U.S. PATENT NO. 8,675,356

57. Plaintiff incorporates by reference each and every allegation of paragraphs 1 through 36 as if set forth fully herein.

58. The '356 patent is valid and fully enforceable.

59. DOK is the Assignee of all rights title and interest in the '356 patent.

60. On information and belief, Defendants have been and/or are directly infringing and/or inducing infringement of and/or contributorily infringing the '356 patent by, among other things, making, using, offering to sell or selling in the United States, or importing into the United States, products and/or services that are covered by the claims of the '356 patent, including, by way of example and not limitation, the JAM ZZZ Alarm Clock.

61. The amount of money damages that Plaintiff suffered due to Defendants' acts of infringement cannot be determined without an accounting; however, Plaintiff is entitled to at least a reasonable royalty for all infringing JAM ZZZ Alarm Clocks made, imported sold and/or offered for sale, by Defendants.

DEMAND FOR JURY TRIAL

62. Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, DOK respectfully requests a trial by jury of all issues properly triable by jury.

PRAYER FOR RELIEF

WHEREFORE, DOK prays for the following relief:

A. A judgment that Defendants be declared to have infringed the claims of the DOK Patents as alleged above;

B. A judgment that Defendants and its officers, agents, servants, employees, and all those persons acting or attempting to act in active concert or in participation with them or acting

on their behalf be immediately, preliminarily and permanently enjoined from further infringement of the DOK Patents;

C. A judgment that Defendants be ordered to account for and pay to DOK all damages caused to DOK by reason of Defendants' infringement of the DOK Patents pursuant to 35 U.S.C. § 284, or in the alternative, a reasonable royalty.

D. A judgment that Defendants be ordered to pay treble damages for willful infringement of each of the DOK Patents pursuant to 35 U.S.C. § 284;

E. A judgment that this case be declared exceptional under 35 U.S.C. § 285 and that DOK be awarded its attorneys' fees, expenses, and costs incurred in this action;

F. A judgment that DOK be granted pre-judgment and post-judgment interest on the damages caused to it by reason of Defendants' infringement of the DOK Patents;

G. A judgment that Defendants be ordered to pay all costs associated with this action; and,

H. A judgment that DOK be granted such other and additional relief as the Court deems just and proper.

Respectfully submitted,
DIXIT LAW FIRM, P.A.

s/ Shyamie Dixit

Shyamie Dixit, Esq. (sdixit@dixitlaw.com)
Florida Bar No. 719684
Robert L. Vessel, Esq. (rvessel@dixitlaw.com)
Florida Bar No. 314536
3030 N. Rocky Point Drive West, Suite 260
Tampa, FL 33607
Telephone: (813) 252-3999
Facsimile: (813) 252-3997
Attorneys for Plaintiff DOK Solution, LLC

US007742293B2

(12) **United States Patent**
Strauser

(10) **Patent No.: US 7,742,293 B2**
(45) **Date of Patent: Jun. 22, 2010**

(54) **ADAPTABLE DIGITAL MUSIC PLAYER CRADLE**

(76) Inventor: **Jack Strauser**, 6365 53rd St. North, Suite B, Pinellas Park, FL (US) 33781

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 793 days.

(21) Appl. No.: **11/676,850**

(22) Filed: **Feb. 20, 2007**

(65) **Prior Publication Data**

US 2008/0197050 A1 Aug. 21, 2008

(51) **Int. Cl.**
H05K 5/00 (2006.01)
H05K 7/00 (2006.01)

(52) **U.S. Cl.** **361/679.41**; 361/679.4

(58) **Field of Classification Search** 361/679.01, 361/679.4, 679.41

See application file for complete search history.

(56) **References Cited**

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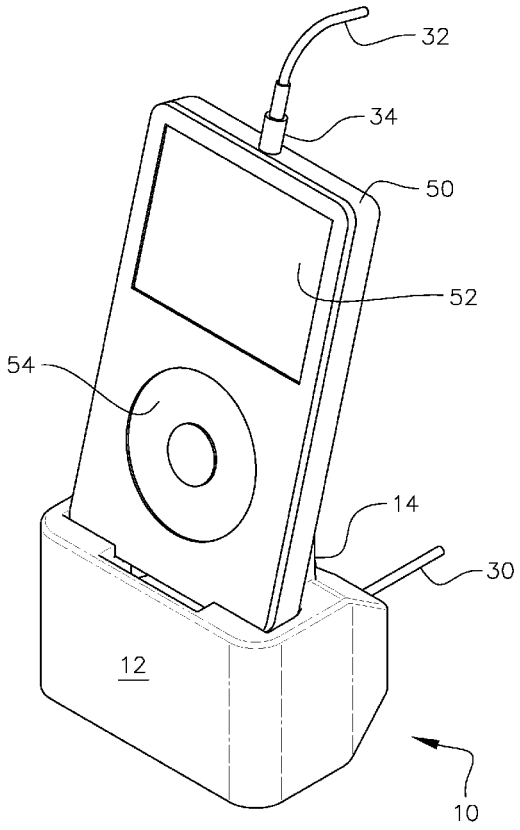
* cited by examiner

Primary Examiner—Jayprakash N Gandhi
Assistant Examiner—Anthony M Haughton
(74) *Attorney, Agent, or Firm*—Larson & Larson, P.A.; Frank Liebenow

(57) **ABSTRACT**

A digital music player cradle for sequentially supporting multiple digital music players includes a base with a cavity in an upper surface. The cavity accepts an end portion of a largest digital music player of the multiple digital music players. A support wall extends from the upper surface of the base for supporting one of the digital music players at a time. A trough in the back of the base extends through the support wall and into the cavity. The trough is provided to route a data cable connected to the one of the multiple digital music players. A plurality of ledges is within the cavity. The ledges are of decreasing size towards the bottom of the cavity and each ledge is sized to hold a different one of the multiple digital music players.

20 Claims, 4 Drawing Sheets



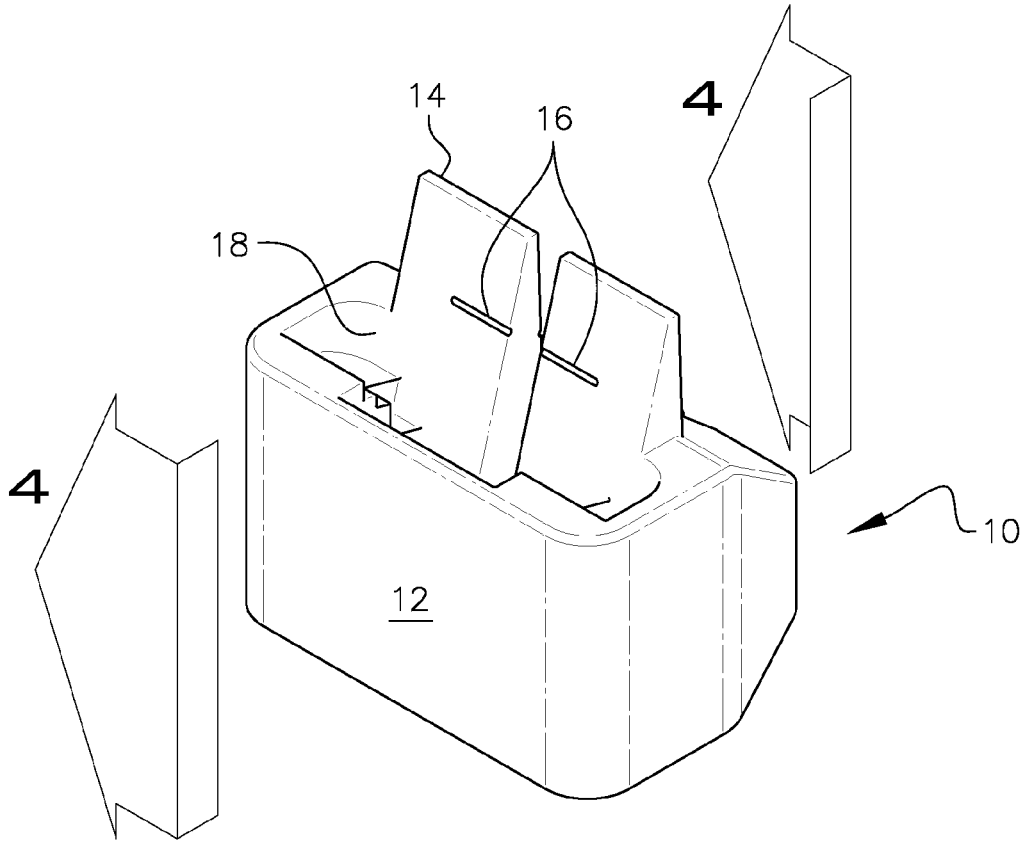


FIG. 1

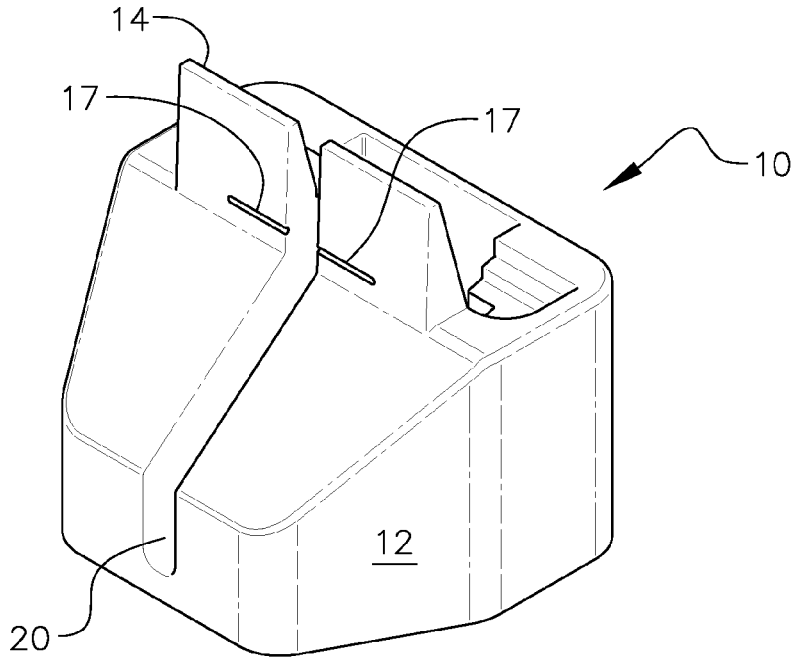


FIG. 2

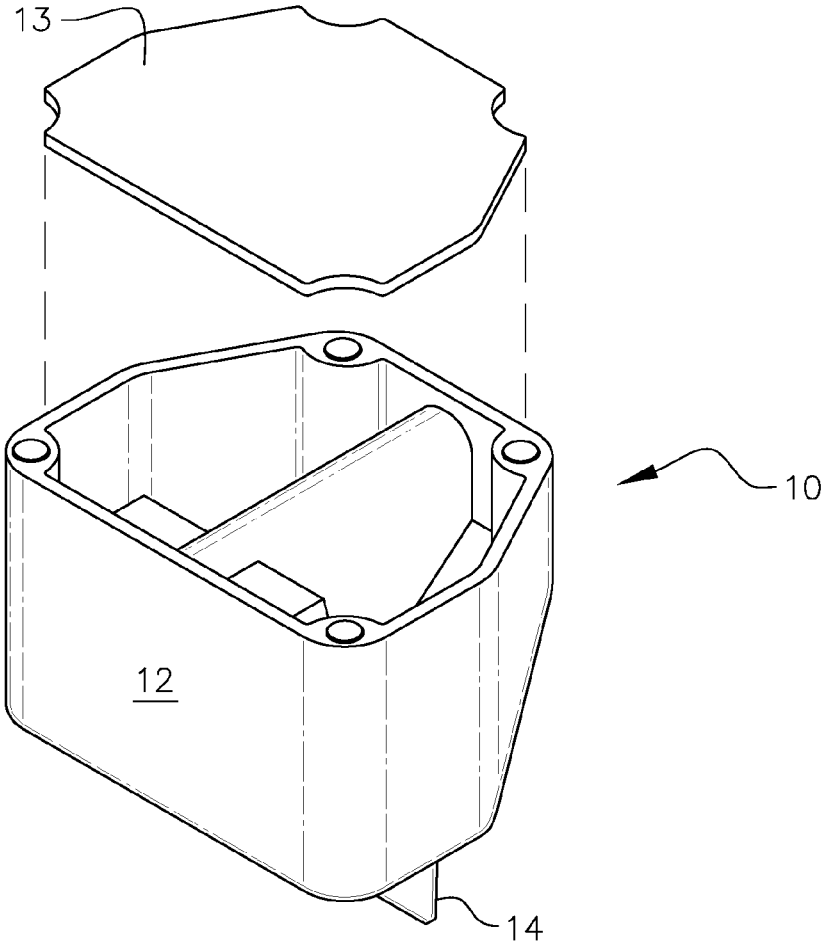


FIG. 3

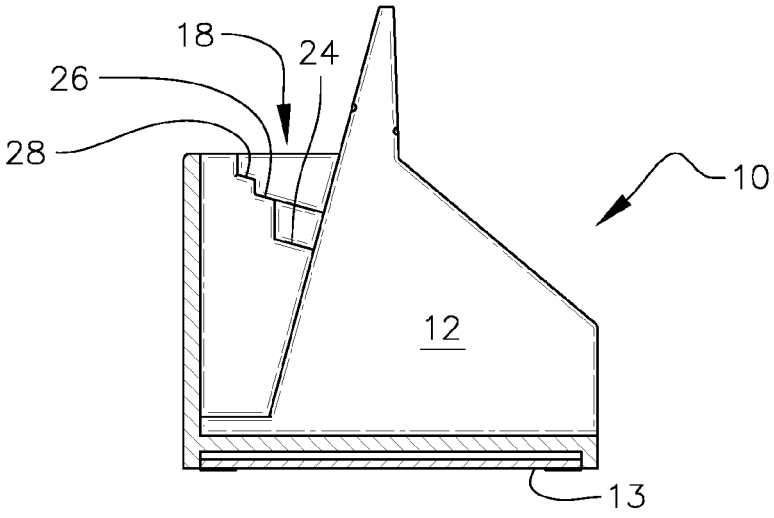


FIG. 4

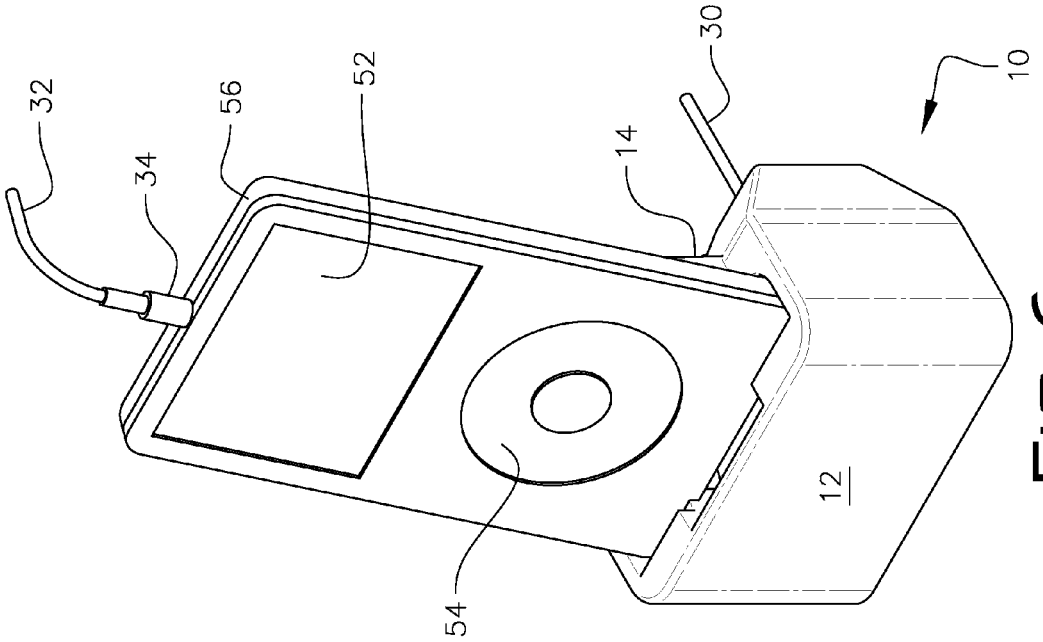


FIG. 6

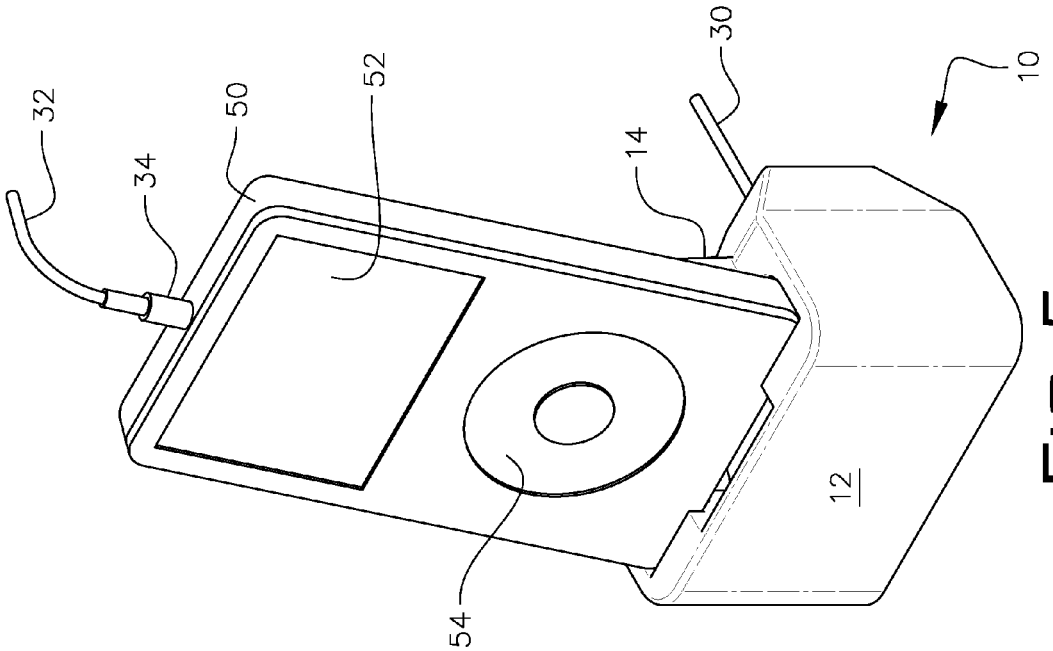


FIG. 5

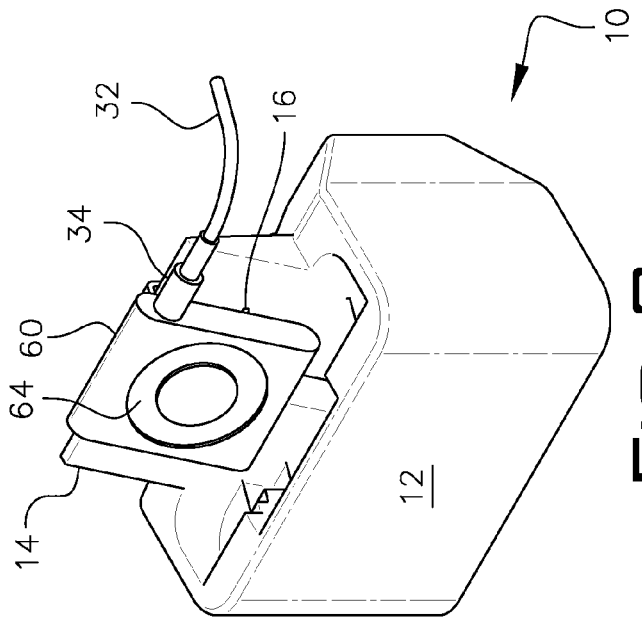


FIG. 8

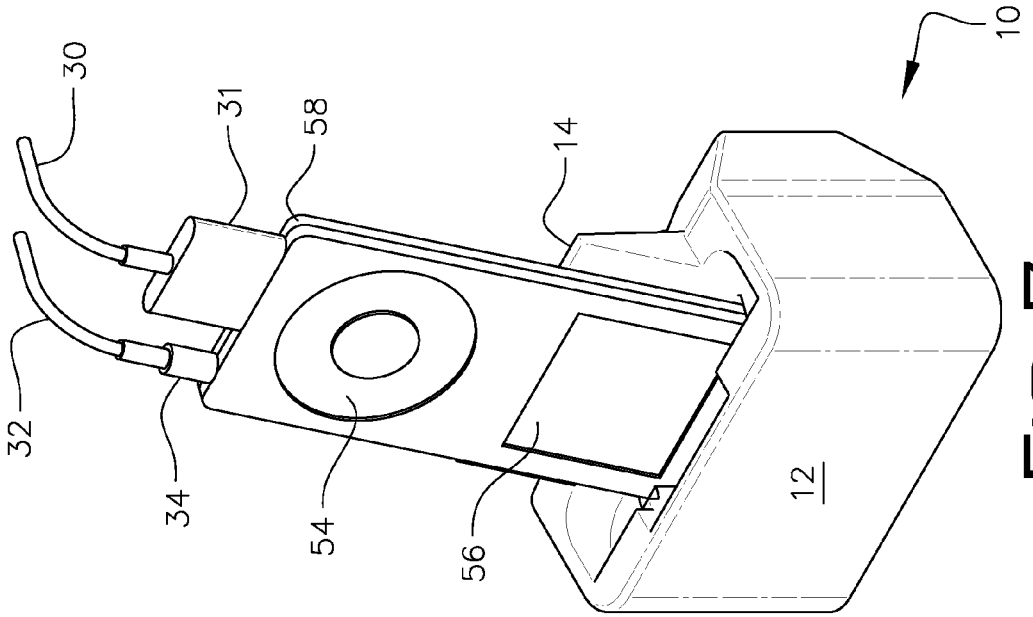


FIG. 7

ADAPTABLE DIGITAL MUSIC PLAYER CRADLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to digital music players and more particularly to a cradle for supporting and holding one of a selection of music players.

2. Description of the Related Art

Digital music players are well known in the industry. Generally, these devices have internal storage for storing songs in digital format, a display for providing user feedback and controls for accepting user inputs to direct the music player to convert one or more of the songs from digital format into analog so that the user can listen to the audio with headphones or through an amplifier and speakers.

Predominately, portable music players utilize songs or other audio content in the form of compressed digitized audio files (e.g., content). Music or other audio is converted to digital by an audio-to-digital converter (ADC), then sampled at a given rate, then compressed using a particular encoding standard such as MP3 (MPEG-2 layer 3) or WMA (Windows® Media Audio).

When used in a portable mode, digital music players are predominately used with earphones for a single user's pleasure. Although portable music players are perfect for use in a portable mode such as when walking or exercising, often such players are used in a stationary mode. There are two primary modes of stationary use: connected to an audio system for amplification and reproduction of music from the digital music player and connected to a computer for management and loading of content.

For connection to an audio system, often the audio input of the audio system is connected directly to the headphone jack of the digital music player and the music normally heard on the user's headphone is amplified and delivered to one or more speakers for the user's listening pleasure. Alternately, a connector, usually located on the bottom of the digital music player, interfaces to a mating connector and some of the pins on the connector carry the analog audio output from the digital music player to a cable that connects to the input of the audio system. There have been several docking systems designed for popular digital music players such as those marketed by Apple corporation. Additionally, some manufacturers market audio systems with docking cradles for specific digital music player such as the Apple Corporation iPod®. For example, Apple Corporation markets an alarm clock and amplified speakers called "XtremeMac Luna Speakers." The "XtremeMac Luna Speakers" have a docking cradle that accepts an iPod®, but users with different digital music players cannot use the docking cradle and must use this device's auxiliary audio input connected to the earphone jack of their music player. When connected in this fashion, the digital music player does not receive power from the audio system and is not supported or protected from damage or scratching.

For connection to a computer system, often a data cable is connected to the connector located on the bottom of the digital music player. Often, some of the pins on this connector include power pins to power the digital music player while connected to the computer as well as data pins for transferring digitized audio files to the digital music player from the computer. Often, the data pins conform to a computer interface standard such as Universal Serial Bus (USB), a standard supported by many existing computers. Such a standard often provides for two-way data transmission as well as power, usually 5 volts, DC.

There have been several computer connection docking systems designed for certain popular digital music players such as those marketed by Apple Corporation. For example, Apple Corporation markets an iPod® nano docking station for supporting the iPod® nano and connecting it to a computer system. Unfortunately, this docking station only accepts the iPod® nano and no other digital music players, not even other digital music players from the same manufacturer. A user having two different digital music players would need two different docking cradles.

Some docking cradles, such as those provided with digital music player from Apple Corporation, hold more than one variety of digital music players. For example the Apple Universal iPod® Dock holds any of the iPod® nano, 30 GB iPod®, 80 GB iPod®, etc. It does this with five different adapter inserts, requiring the user to swap inserts depending upon which digital music player they are currently using.

What is needed is a digital music player cradle that supports more than one class of music player.

SUMMARY OF THE INVENTION

In one embodiment, a digital music player cradle for sequentially supporting multiple digital music players is disclosed including a base with a cavity in an upper surface. The cavity accepts an end portion of a largest digital music player of the multiple digital music players. A support wall extends from the upper surface of the base for supporting one of the digital music players at a time. A trough in the back of the base extends through the support wall and into the cavity. The trough is provided to route a data cable connected to the one of the multiple digital music players. A plurality of ledges is within the cavity. The ledges are of decreasing size towards the bottom of the cavity and each ledge is sized to hold a different one of the multiple digital music players.

In another embodiment, a method of supporting multiple digital music players is disclosed including providing a digital music player cradle for supporting any one digital music player of the multiple digital music players. The digital music player cradle has a base with a cavity in an upper surface. The cavity accepts an end portion of a largest digital music player of the multiple digital music players. A support wall extends from the upper surface of the base for supporting one of the multiple digital music players at a time and a trough passes through the back side of the base, extends through the support wall and interfaces with the cavity to route a data cable connected to the one of the digital music players. Ledges of decreasing size towards a bottom of the cavity are configured to each hold a different one of the multiple digital music players. The method continues with connecting a first digital music player to a first end of the data cable and connecting a second end of the data cable connected to a computer system then inserting a first end of the first digital music player into the cavity with a back side of the first digital music player resting against the support wall. Next, the first digital music player is removed from the cavity and a second digital music player is connected to the first end of the data cable. The second digital music player has a different width than the first digital music player. Finally, a first end of the second digital music player is inserted into the cavity with a back side of the second digital music player resting against the support wall.

In another embodiment, a digital music player cradle for sequentially supporting multiple digital music players is disclosed including a base with an area for accepting an end portion of any one of the multiple digital music players and a support extending from an upper surface of the base for resting the digital music player. The base has a channel to

allow a data cable connected to the digital music player to pass out to be connected to a computer system. Steps support the multiple digital music players within the area for supporting the digital music player, the steps including ledges of decreasing size towards the bottom of the area for supporting the digital music player and each ledge is sized to hold a different sized digital music players.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

FIG. **1** illustrates an isometric view of a digital music player cradle of the present invention.

FIG. **2** illustrates an isometric view of a digital music player cradle of the present invention from the back.

FIG. **3** illustrates an exploded view of a digital music player cradle of the present invention from the bottom.

FIG. **4** illustrates a cross-sectional view of a digital music player cradle of the present invention along line **4-4** of FIG. **1**.

FIG. **5** illustrates an isometric view of a digital music player cradle of the present invention holding a large-sized digital music player.

FIG. **6** illustrates an isometric view of a digital music player cradle of the present invention holding a medium-sized digital music player.

FIG. **7** illustrates an isometric view of a digital music player cradle of the present invention holding a small-sized digital music player.

FIG. **8** illustrates an isometric view of a digital music player cradle of the present invention holding a micro-sized digital music player.

DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Throughout the following detailed description, the same reference numerals refer to the same elements in all figures. In the following description, many different digital music players are currently on the market. These devices generally have persistent storage for storing audio content (music) such as a micro-hard disk or flash memory. Under user control, the audio files are retrieved, uncompressed and converted to analog audio. The analog audio signal is often emitted in a 3.5 mm stereo headphone jack for the user to connect headphones or other reproduction devices.

Referring to FIG. **1**, an isometric view of a digital music player cradle of the present invention is described. The digital music player cradle **10** accommodates a variety of digital music players of various widths and thicknesses, thereby eliminating the need for multiple cradles or adapter inserts as provided in the past. The digital music player cradle **10** has a base **12**, a cavity for containing an end of the digital music player (not shown) and a support wall **14** for supporting the digital music player on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold a clip-on micro-sized music player (not shown).

Referring to FIG. **2**, an isometric view of a digital music player cradle of the present invention from the back is described. Again, the digital music player cradle **10** accommodates a variety of digital music players of various widths and thicknesses. The digital music player cradle **10** has a base **12**, a cavity for containing an end of the digital music player (not shown) and a support wall **14** for supporting the digital music player on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold a clip-on micro-sized music player (not shown). Also, in some embodiments, a pair of rear clip indentations **17** is provided to hold a clip-on micro-sized music player (not shown).

A cable trough **20** is provided to route a data cable from the digital music player (not shown). Often, the digital music player (not shown) has a connector for connecting to a computer for transferring content through the data cable. As an example, many current digital music players have a connector for connecting to a Universal Serial Bus (USB) cable.

Referring to FIG. **3**, an exploded view of a digital music player cradle of the present invention from the bottom is described. In some embodiments, the base of the digital music player cradle **10** has a removable bottom **13**. In some embodiments, balancing weights are disposed inside of the base **12** and sealed with the bottom **13** by various methods known in the art including, but not limited to, ultrasonic welding, adhesives, pressure fits, etc.

Referring to FIG. **4**, a cross-sectional view of a digital music player cradle of the present invention along line **4-4** of FIG. **1** is described. The base **12** digital music player cradle is shown with the bottom **13** installed. In this embodiment, the cavity **18** is shaped to hold the ends of three different digital music players. An end of a larger-sized digital music player such as an Apple Corporation 80 GB iPod® or a Microsoft Corporation Zume™ fits within the outer cavity formed by a ledge **28**. An end of a medium-sized digital music player such as an Apple Corporation 30 GB iPod® fits within the middle cavity formed by a ledge **26**. An end of a smaller-sized digital music player such as an Apple Corporation Nano® fits within the inner cavity formed by a ledge **24**. Although shown having three ledges **24**/**26**/**28**, the present invention is not limited in the number of sizes of digital music players supported. Any number of digital music players from two digital music players is supportable by the present invention. Also, although shown fitting with Apple Corporation products, the digital music player cradle **10** of the present invention is adaptable to any size and shape of digital music player.

Referring to FIG. **5**, an isometric view of a digital music player cradle of the present invention holding a large-sized digital music player **50** is described. In this view, a large-sized digital music player **50** such as the Apple Corporation 80 GB iPod® or a Microsoft Corporation Zume™ is shown resting within the outer cavity formed by the ledge **28** and resting on the support wall **14**. In such a position, the large-sized digital music player **50** is raised off the table surface, helping to prevent scratches and other damage. Many large-sized digital music players **50** have controls **54** for selecting songs, etc. and a display for informing the user of various modes of operation **52**. Also, many large-sized digital music players **50** have a connector into which a stereo headphone jack **34** with cable **32** is inserted. The data cable **30** is connected to the large-sized digital music player **50** by a connector similar to the connector **31** as shown in FIG. **7** (not visible in this figure) and the data cable **30** is routed through the trough **20**. The present invention functions with or without a data cable **30** and connector **31** attached. Likewise, the present invention functions with or without an audio cable **32** attached.

Referring to FIG. **6**, an isometric view of a digital music player cradle of the present invention holding a medium-sized digital music player is described. In this view, a medium-sized digital music player **56** such as the Apple Corporation 30 GB iPod® is shown resting within the middle cavity formed by the ledge **26** and resting on the support wall **14**. In

such a position, the medium-sized digital music player **56** is raised off the table surface, helping to prevent scratches and other damage. Many medium-sized digital music players **56** have controls **54** for selecting songs, etc. and a display for informing the user of various modes of operation **52**. Also, many medium-sized digital music players **56** have a connector into which a stereo headphone jack **34** with cable **32** is inserted. The data cable **30** is connected to the medium-sized digital music player **56** by a connector similar to the connector **31** as shown in FIG. **7** (not visible in this figure) and the data cable **30** is routed through the trough **20**.

Referring to FIG. **7**, an isometric view of a digital music player cradle of the present invention holding a small-sized digital music player is described. In this view, a smaller-sized digital music player **58** such as the Apple Corporation Nano® is shown resting within the inner cavity formed by the ledge **24** and resting on the support wall **14**. In such a position, the smaller-sized digital music player **58** is raised off the table surface, helping to prevent scratches and other damage. Many smaller-sized digital music players **58** have controls **54** for selecting songs, etc. and a display for informing the user of various modes of operation **52**. Also, many smaller-sized digital music players **58** have a connector into which a stereo headphone jack **34** with cable **32** is inserted. The data cable **30** is connected to the smaller-sized digital music player **58** by a connector similar to the connector **31** as shown in FIG. **7** (not visible in this figure) and the data cable **30** is routed through the trough **20**. The present invention functions with or without a data cable **30** and connector **31** attached. Likewise, the present invention functions with or without an audio cable **32** attached. For some digital music players such as the smaller-sized digital music player **58**, the orientation of the data connector **31** makes it difficult to rest properly in an upright position within the digital music player cradle **10**. In such cases, the smaller-sized digital music player **58** rests in an upside-down configuration as shown in FIG. **7**, still providing the benefit of keeping the smaller-sized digital music player off of the table surface and thereby protecting it.

Referring to FIG. **8**, an isometric view of a digital music player cradle of the present invention holding a micro-sized digital music player is described. Some micro-sized digital music players **60** are very small and are designed to clip onto a user's clothing. Often, these micro-sized digital music players **60** such as the Apple Corporation Mini, have no display and only a control **64** for initiating the playing of audio, etc. To support micro-sized digital music players **60**, a pair of front clip indentations **16** and a pair of rear clip indentations **17** are provided. Using these clip indentations **16**/**17**, a clip of the micro-sized digital music player **60** clips onto the support wall and the edges of each side of the micro-sized digital music player's **60** clip is held within the clip indentations **16**/**17**. Without the clip indentations, the micro-sized digital music player's **60** clip would not stay in place, especially if the digital music player cradle **10** is made from a slippery, plastic material. As stated previously, the present invention functions with one set of clip indentations **16**/**17**, two sets of clip indentations **16**/**17** and without any clip indentations **16**/**17**, depending upon the types and styles of digital music players supported.

Equivalent elements can be substituted for the ones set forth above such that they perform in substantially the same manner in substantially the same way for achieving substantially the same result.

It is believed that the system and method of the present invention and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely exemplary and explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes.

What is claimed is:

1. A digital music player cradle for sequentially supporting multiple digital music players, the digital music player cradle comprising:

a base;

a cavity in an upper surface of the base, the cavity adapted to accept an end portion of a largest digital music player of the multiple digital music players;

a support wall extending from the upper surface of the base for supporting one of the digital music players;

a trough in a back side of the base extending through the support wall and interfacing with the cavity, the trough adapted to route a data cable connected to the one of the multiple digital music players; and

a plurality of ledges within the cavity, the ledges of decreasing size towards a bottom of the cavity, whereas each ledge is sized to hold a different one of the multiple digital music players.

2. The digital music player cradle of claim **1**, wherein the multiple digital music players consists of a large-sized digital music player, a medium-sized digital music player and a small-sized digital music player.

3. The digital music player cradle of claim **1**, wherein the support wall has at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player.

4. The digital music player cradle of claim **1**, wherein the support wall has at least one rear-clip indentation running substantially horizontal on a back surface for supporting a clip-on digital music player.

5. The digital music player cradle of claim **1**, wherein the data cable is a Universal Serial Bus cable for connecting to a computer system.

6. The digital music player cradle of claim **1**, wherein the base is substantially hollow and the base comprises an upper base portion and a bottom base cover whereas the bottom base cover is adapted to retain a mass for providing additional stability.

7. A method of supporting multiple digital music players, the method comprising:

providing a digital music player cradle for supporting any one digital music player of the multiple digital music players, the digital music player cradle comprising:

a base;

a cavity in an upper surface of the base, the cavity adapted to accept an end portion of a largest digital music player of the multiple digital music players;

a support wall extending from the upper surface of the base for supporting one of the multiple digital music players at a time;

a trough in the back side of the base extending through the support wall and interfacing with the cavity, the trough adapted to route a data cable connected to the one of the digital music players;

a plurality of ledges within the cavity, the ledges of decreasing size towards a bottom of the cavity, whereas each ledge is sized to hold a different one of the multiple digital music players;

connecting a first digital music player of the multiple digital music players to a first end of the data cable, a second end of the data cable connected to a computer system;

inserting a first end of the first digital music player into the cavity, a back side of the first digital music player resting against the support wall;

removing the first digital music player from the cavity;

connecting a second digital music player of the multiple digital music players to the first end of the data cable, the second digital music player having a different width than the first digital music player; and

inserting a first end of the second digital music player into the cavity, a back side of the second digital music player resting against the support wall.

8. The digital music player cradle of claim **7**, wherein the first digital music player is a large-sized digital music player and the second digital music player is a small-sized digital music player.

9. The digital music player cradle of claim **7**, wherein the support wall has at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player.

10. The digital music player cradle of claim **7**, wherein the support wall has at least one rear-clip indentation running substantially horizontal on a back surface for supporting a clip-on digital music player.

11. The digital music player cradle of claim **7**, wherein the data cable is a Universal Serial Bus cable for connecting to a computer system.

12. A digital music player cradle for sequentially supporting multiple digital music players, the digital music player cradle comprising:

a base;

a means for accepting an end portion of a digital music player of the multiple digital music players;

a means for supporting the digital music player extending from an upper surface of the base;

a means for routing a data cable from the means for accepting an end portion of the digital music player through the means for supporting the digital music player, the data cable connected to the digital music player; and

an stepped means for supporting the multiple digital music players within the means for supporting the digital music player, the stepped means for supporting the multiple digital music players including ledges of decreasing size towards a bottom of the means for supporting the digital music player, whereas each ledge is sized to hold a different one of the multiple digital music players.

13. The digital music player cradle of claim **12**, wherein the multiple digital music players consists of a large-sized digital music player, a medium-sized digital music player and a small-sized digital music player.

14. The digital music player cradle of claim **12**, wherein the means for supporting the digital music player has a means for supporting a clip-on digital music player.

15. The digital music player cradle of claim **14**, wherein the means for supporting a clip-on digital music player includes at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player.

16. The digital music player cradle of claim **14**, wherein the means for supporting a clip-on digital music player includes at least one rear-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player.

17. The digital music player cradle of claim **12**, wherein the data cable is a Universal Serial Bus cable for connecting to a computer system.

18. The digital music player cradle of claim **12**, wherein the base is substantially hollow and the base comprises an upper base portion and a bottom base cover whereas the bottom base cover is adapted to retain a mass for providing additional stability.

19. The digital music player cradle of claim **12**, wherein a first digital music player of the multiple digital music players is wider than a second digital music player of the multiple digital music players.

20. The digital music player cradle of claim **12**, wherein a first digital music player of the multiple digital music players is thicker than a second digital music player of the multiple digital music players.

* * * * *

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(12) **United States Patent**
Strauser

(10) **Patent No.: US 8,116,077 B1**
(45) **Date of Patent: Feb. 14, 2012**

(54) **DIGITAL MUSIC PLAYER CRADLE ATTACHMENT**

(76) Inventor: **Jack Strauser**, Pinellas Park, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 227 days.

(21) Appl. No.: **12/699,078**

(22) Filed: **Feb. 3, 2010**

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/676,850, filed on Feb. 20, 2007, now Pat. No. 7,742,293.

(51) **Int. Cl.**
H05K 5/00 (2006.01)
H05K 7/00 (2006.01)

(52) **U.S. Cl.** **361/679.41**; 361/679.4

(58) **Field of Classification Search** 361/679.01, 361/679.4, 679.41
See application file for complete search history.

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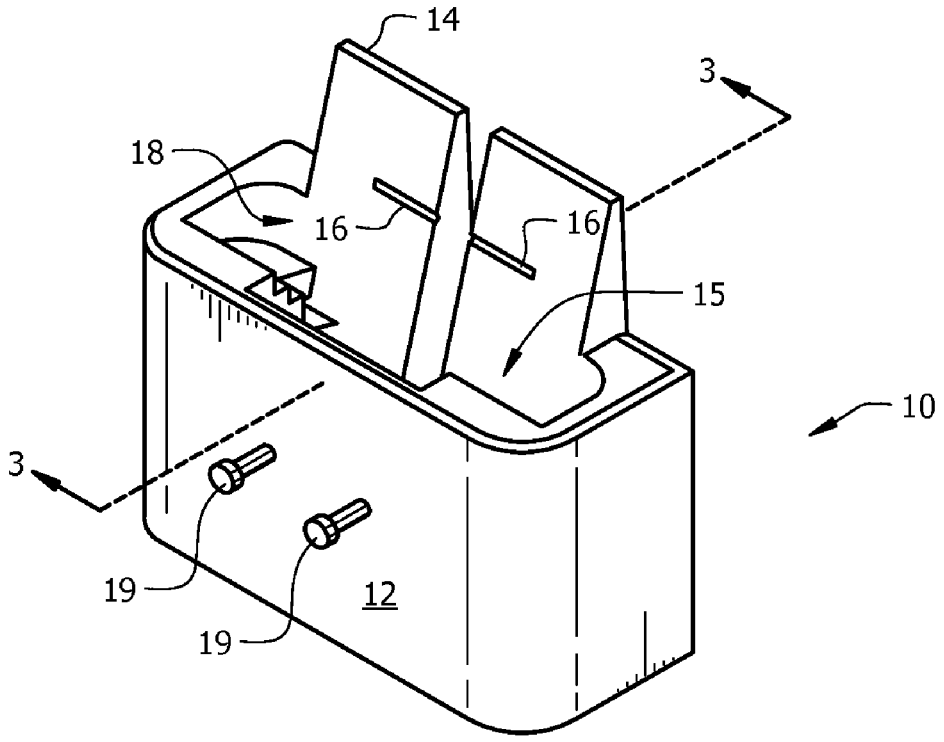
Primary Examiner — Anthony Haughton
(74) *Attorney, Agent, or Firm* — Larson & Larson, P.A.; Frank Liebenow; Justin Miller

(57) **ABSTRACT**

A digital music player cradle for sequentially supporting multiple digital music players includes a base with a cavity in an upper surface. The cavity accepts an end portion of a largest digital music player of the multiple digital music players. A support wall extends from the upper surface of the base for supporting one of the digital music players at a time. A plurality of ledges is within the cavity. The ledges are of decreasing size towards the bottom of the cavity and each ledge is sized to hold a different one of the multiple digital music players. The digital music player cradle has fasteners for attaching to a device such as a karaoke system.

20 Claims, 7 Drawing Sheets



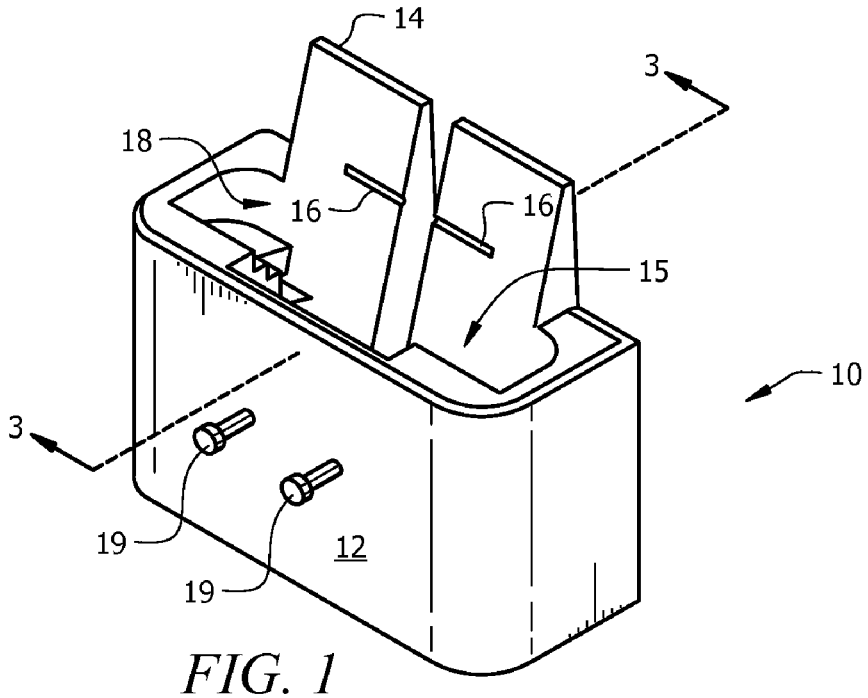


FIG. 1

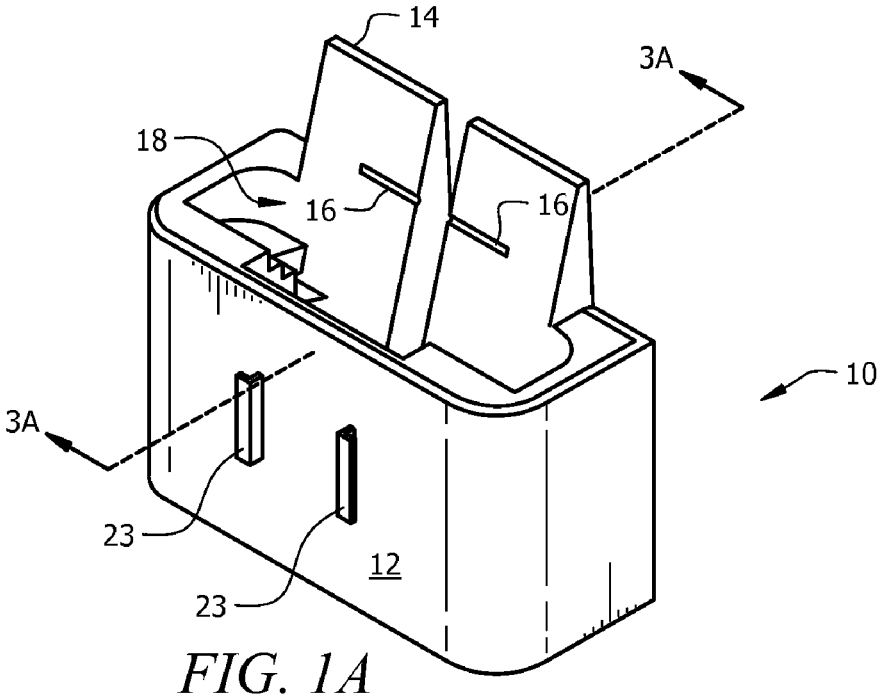


FIG. 1A

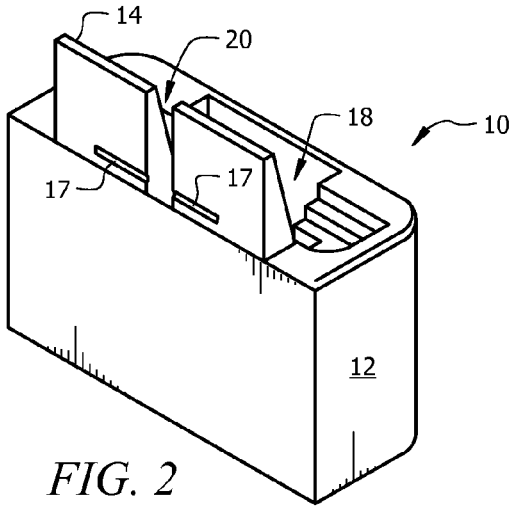


FIG. 2

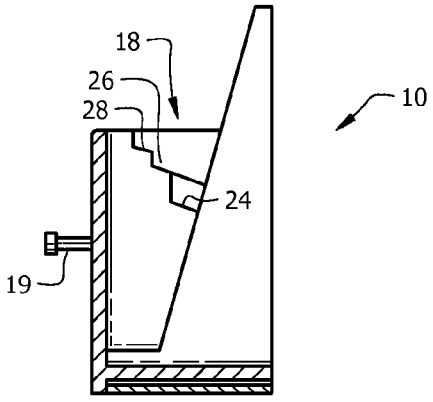


FIG. 3

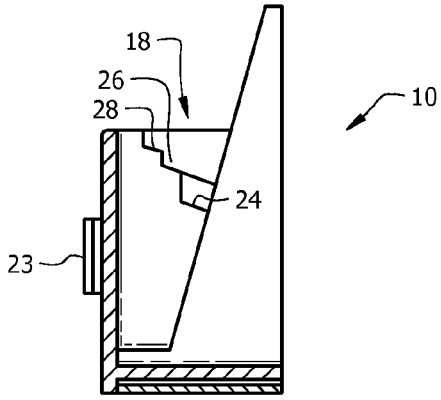


FIG. 3A

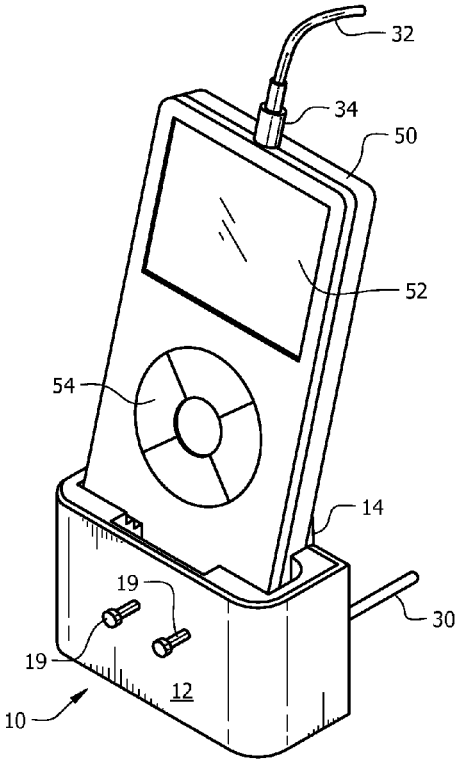


FIG. 4

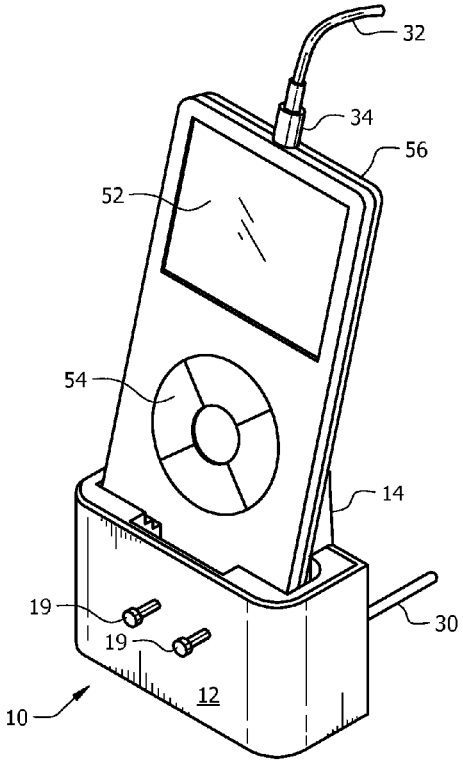


FIG. 5

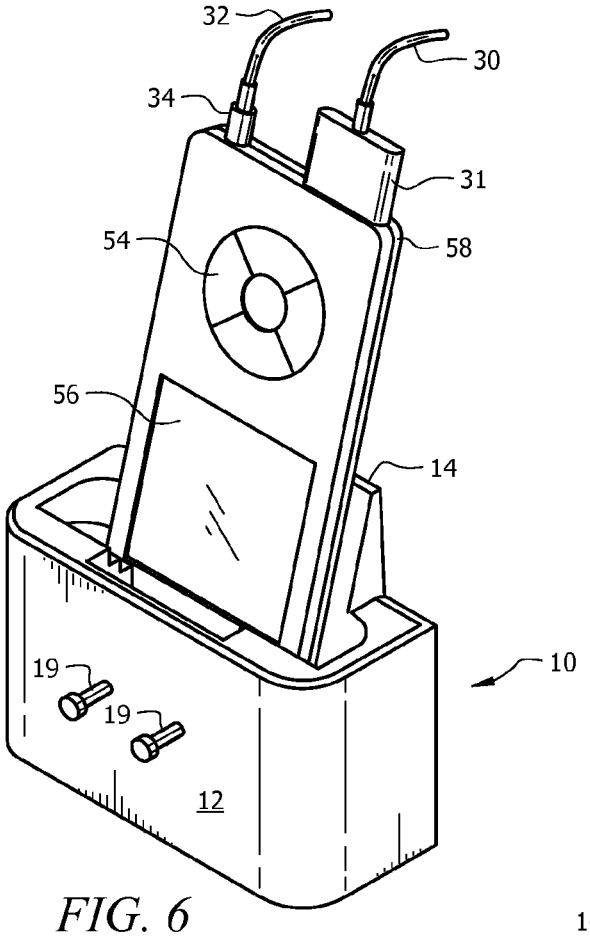


FIG. 6

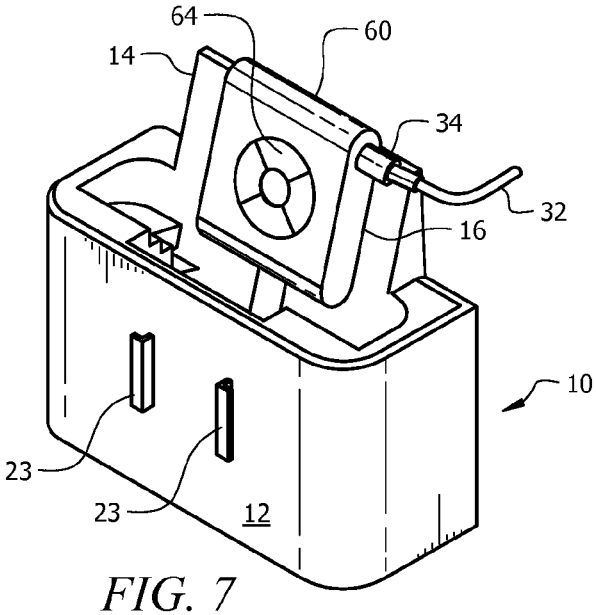


FIG. 7

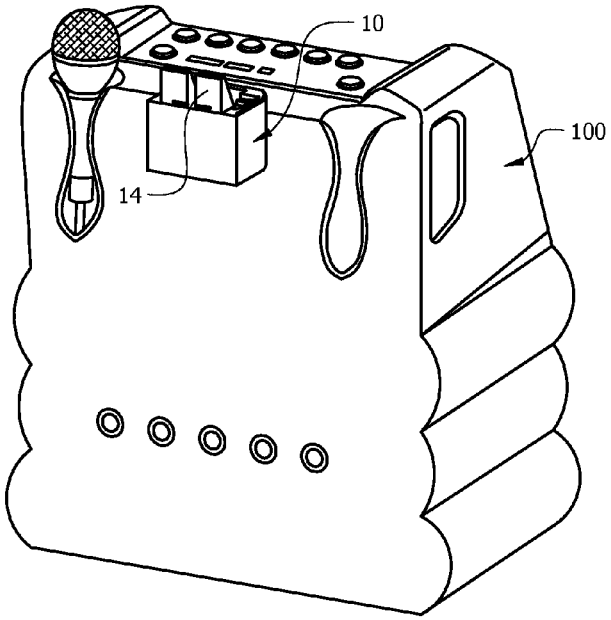


FIG. 8

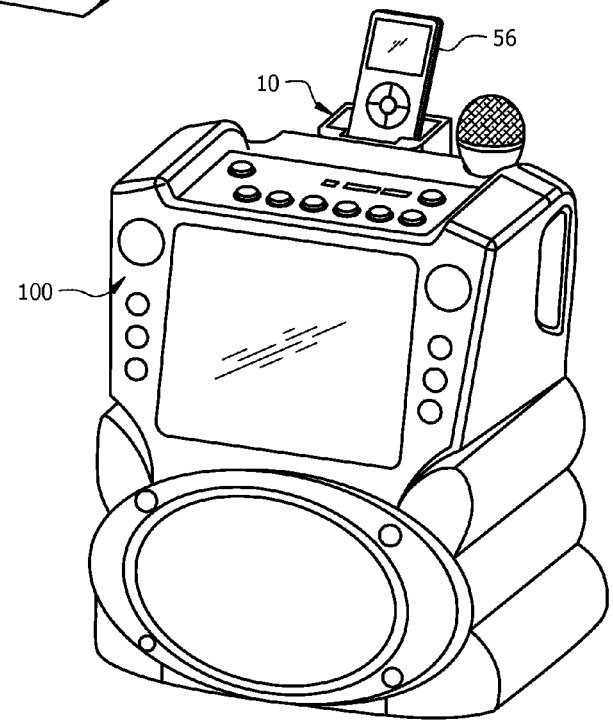


FIG. 9

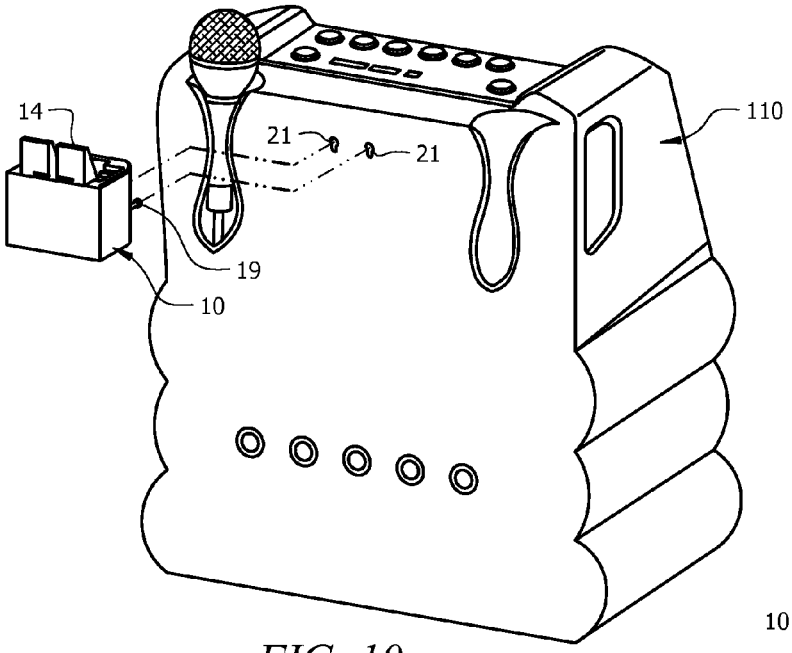


FIG. 10

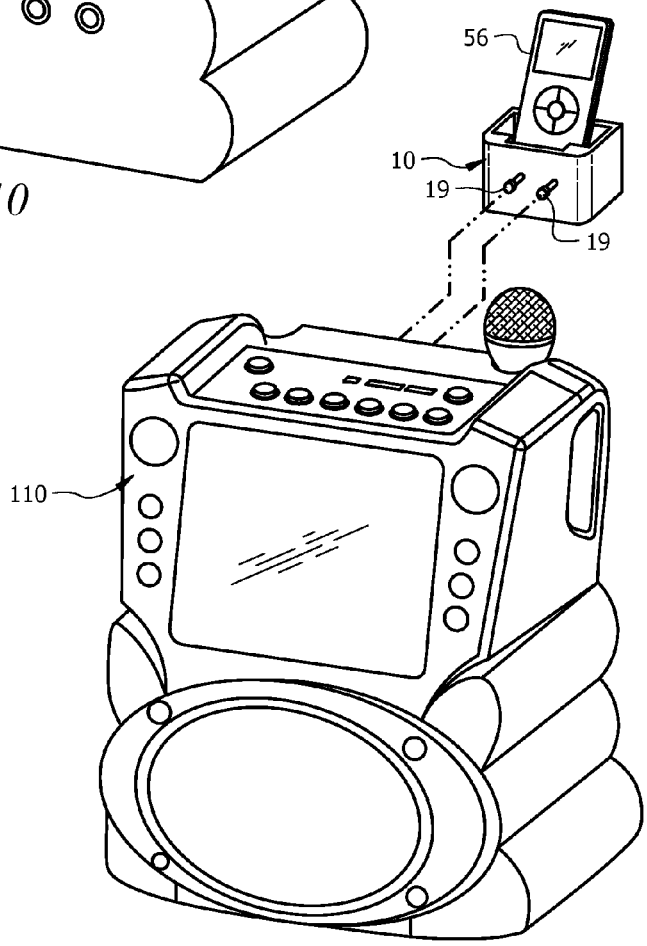


FIG. 11

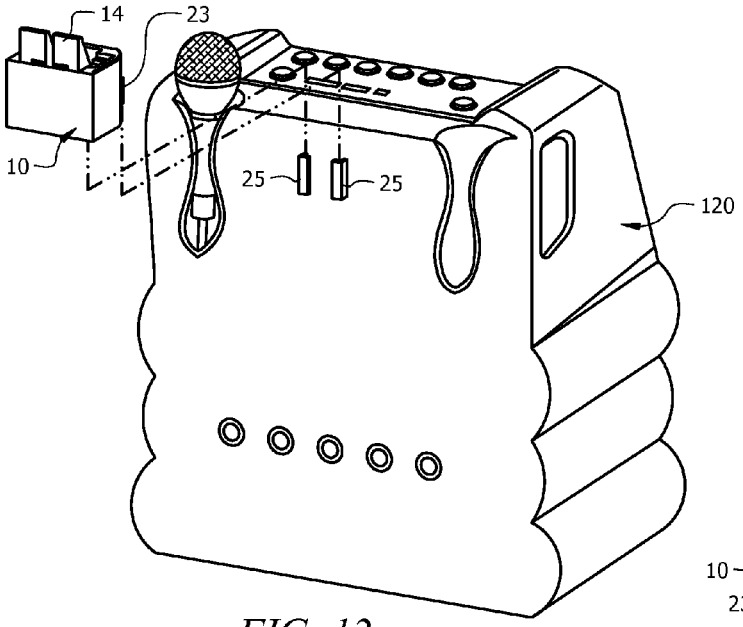


FIG. 12

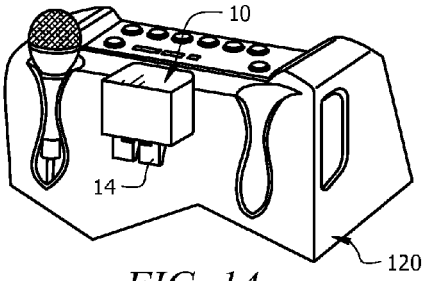


FIG. 14

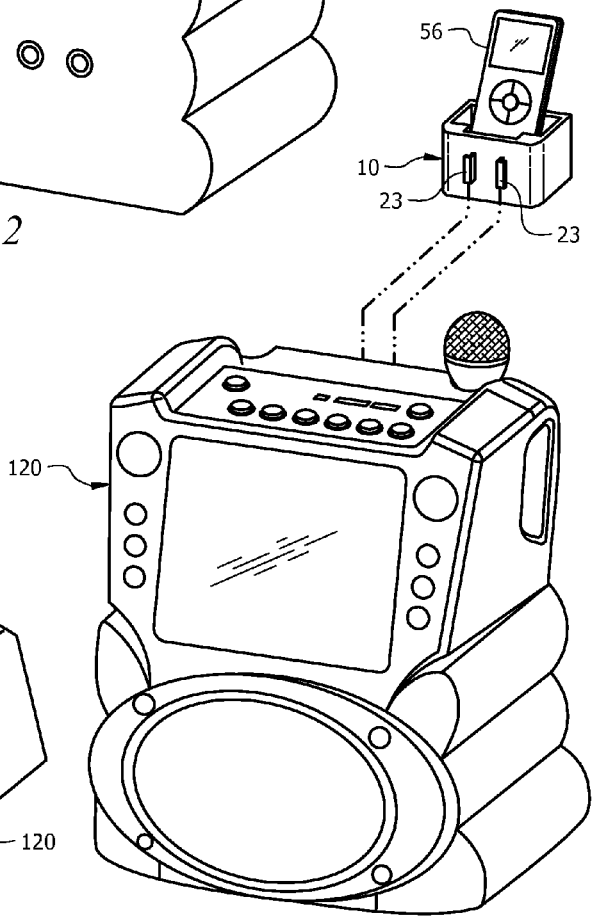


FIG. 13

DIGITAL MUSIC PLAYER CRADLE ATTACHMENT

RELATED APPLICATION

This application is a Continuation-in-Part of U.S. patent application Ser. No. 11/676,850, titled "ADAPTABLE DIGITAL MUSIC PLAYER CRADLE," filed Feb. 20, 2007.

FIELD

This invention relates to Karaoke systems and more particularly to a cradle for supporting and holding one of a selection of music players onto a music or Karaoke system.

BACKGROUND

Digital music players are well known in the industry. Generally, these devices have internal storage for storing songs in digital format, a display for providing user feedback and controls for accepting user inputs to direct the music player to convert one or more of the songs from digital format into analog so that the user can listen to the audio with headphones or through an amplifier and speakers.

Predominately, portable music players utilize songs or other audio content in the form of compressed digitized audio files (e.g., content). Music or other audio is converted to digital by an audio-to-digital converter (ADC), then sampled at a given rate, then compressed using a particular encoding standard such as MP3 (MPEG-2 layer 3) or WMA (Windows® Media Audio).

When used in a portable mode, digital music players are predominately used with earphones for a single user's pleasure. Although portable music players are perfect for use in a portable mode such as when walking or exercising, often such players are used in a stationary mode. There are two primary modes of stationary use: connected to an audio system for amplification and reproduction of music from the digital music player and connected to a computer for management and loading of content.

For connection to an audio system, often the audio input of the audio system is connected directly to the headphone jack of the digital music player and the music normally heard on the user's headphone is amplified and delivered to one or more speakers for the user's listening pleasure. Alternately, a connector, usually located on the bottom of the digital music player, interfaces to a mating connector and some of the pins on the connector carry the analog audio output from the digital music player to a cable that connects to the input of the audio system. There have been several docking systems designed for popular digital music players such as those marketed by Apple corporation. Additionally, some manufacturers market audio systems with docking cradles for specific digital music player such as the Apple Corporation iPod®. For example, Apple Corporation markets an alarm clock and amplified speakers called "XtremeMac Luna Speakers." The "XtremeMac Luna Speakers" have a docking cradle that accepts an iPod®, but users with different digital music players cannot use the docking cradle and must use this device's auxiliary audio input connected to the earphone jack of their music player. When connected in this fashion, the digital music player does not receive power from the audio system and is not supported or protected from damage or scratching.

For connection to a computer system, often a data cable is connected to the connector located on the bottom of the digital music player. Often, some of the pins on this connector include power pins to power the digital music player while

connected to the computer as well as data pins for transferring digitized audio files to the digital music player from the computer. Often, the data pins conform to a computer interface standard such as Universal Serial Bus (USB), a standard supported by many existing computers. Such a standard often provides for two-way data transmission as well as power, usually 5 volts, DC.

There have been several computer connection docking systems designed for certain popular digital music players such as those marketed by Apple Corporation. For example, Apple Corporation markets an iPod® Nano docking station for supporting the iPod® Nano and connecting it to a computer system. Unfortunately, this docking station only accepts the iPod® Nano and no other digital music players, not even other digital music players from the same manufacturer. A user having two different digital music players would need two different docking cradles.

Some docking cradles, such as those provided with digital music player from Apple Corporation, hold more than one variety of digital music players. For example the Apple Universal iPod® Dock holds any of the iPod® Nano, 30 GB iPod®, 80 GB iPod®, etc. It does this with five different adapter inserts, requiring the user to swap inserts depending upon which digital music player they are currently using.

Lately, many Karaoke systems have begun using digital music players as a source of Karaoke content. Some systems have input jacks for accepting audio content that is amplified and presented on speakers. There are no prior systems that have adapters that have holders that accept multiple sizes of digital music players.

What is needed is a Karaoke system with a removable digital music player cradle that supports more than one class of music player.

SUMMARY OF THE INVENTION

In one embodiment, a digital music player cradle for supporting multiple digital music players is disclosed including a base that has a cavity in an upper surface that accepts an end portion of a largest digital music player of the multiple digital music players. The base has a support wall extending from an upper rear surface for supporting one of the digital music players and a plurality of ledges within the cavity. The ledges form decreasing sized openings towards a bottom of the cavity, whereas each ledge is sized corresponding to hold a different one of the multiple digital music players. An attachment mechanism on a front surface of the base connects with a mating attachment mechanism on the sound system, thereby holding the digital music player cradle to the sound system.

In another embodiment, a method of supporting multiple digital music players is disclosed including providing a digital music player cradle for supporting any one digital music player of the multiple digital music players. The digital music player cradle has a base with a cavity in an upper surface. The cavity accepts and holds an end portion of a largest digital music player of the multiple digital music players. A support wall extends from an upper rear surface of the base for supporting one of the multiple digital music players at a time and a plurality of ledges are disposed within the cavity. The ledges form decreasing sized openings towards a bottom of the cavity, whereas each ledge is sized to hold a different one of the multiple digital music players. There is an attachment mechanism on a front surface of the base for connecting with a mating attachment mechanism on the sound system, thereby holding the digital music player cradle to the sound system. The method continues with interfacing the attachment mechanism to the mating attachment mechanism, thereby

attaching the base of the digital music player cradle to the sound system then connecting a first digital music player of the multiple digital music players to a first end of a data cable and a second end of the data cable to the sound system. A first end of the first digital music player is inserted into the cavity within a first ledge and a back side of the first digital music player rests against the support wall. Next, the first digital music player is removed from the cavity and cable; and a second digital music player of the multiple digital music players is connected to the first end of the data cable. The second digital music player has a different size than the first digital music player. Next, a first end of the second digital music player is inserted into the cavity within a different ledge and a back side of the second digital music player rests against the support wall.

In another embodiment, a digital music player cradle for supporting multiple digital music players is disclosed including a base with an area for accepting an end portion of any one of the multiple digital music players and a support extending from an upper surface of the base for resting the digital music player. Steps (ledges) are provided for supporting the multiple digital music players within the area for supporting the digital music player, the steps include ledges forming decreasing sized oepnings towards a bottom of the area for supporting the digital music player and each ledge is sized to hold a different one of the multiple digital music players. The digital music player cradle removably attaches to a sound system with an attachment mechanism (key/key-hole, brackets/slots, hooks/loops, etc).

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

FIG. **1** illustrates an isometric view of a digital music player cradle with one exemplary attachment mechanism.

FIG. **1**A illustrates an isometric view of a digital music player cradle with another exemplary attachment mechanism.

FIG. **2** illustrates an isometric view of a digital music player cradle from the back.

FIG. **3** illustrates a side cross-sectional view of a digital music player cradle with the first exemplary attachment mechanism.

FIG. **3**A illustrates a side cross-sectional view of a digital music player cradle with the second exemplary attachment mechanism.

FIG. **4** illustrates an isometric view of a digital music player cradle holding a large-sized digital music player.

FIG. **5** illustrates an isometric view of a digital music player cradle holding a medium-sized digital music player.

FIG. **6** illustrates an isometric view of a digital music player cradle holding a small-sized digital music player.

FIG. **7** illustrates an isometric view of a digital music player cradle holding a micro-sized digital music player.

FIG. **8** illustrates a rear isometric view of a digital music player cradle attached to a Karaoke system.

FIG. **9** illustrates a front isometric view of a digital music player cradle attached to a Karaoke system with an exemplary digital music player inserted.

FIG. **10** illustrates a rear isometric view of a Karaoke system showing the attachment of a digital music player cradle by the first exemplary attachment mechanism.

FIG. **11** illustrates a front isometric view of a Karaoke system showing the attachment of a digital music player cradle by the first exemplary attachment mechanism.

FIG. **12** illustrates a rear isometric view of a Karaoke system showing the attachment of a digital music player cradle by the second exemplary attachment mechanism.

FIG. **13** illustrates a front isometric view of a Karaoke system showing the attachment of a digital music player cradle by the second exemplary attachment mechanism.

FIG. **14** illustrates a rear isometric view of a Karaoke system showing the attachment of a digital music player cradle in an alternate position for storage when not in use.

DETAILED DESCRIPTION

Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Throughout the following detailed description, the same reference numerals refer to the same elements in all figures. The following description includes examples of digital music players. Many different digital music players are currently on the market. These devices generally have persistent storage for storing audio content (music) such as a micro-hard disk or flash memory. Under user control, the audio files are retrieved, uncompressed and converted to analog audio. The analog audio signal is often emitted in a 3.5 mm stereo headphone jack for the user to connect headphones or other reproduction devices. Some devices have a specialized data/power connector for connecting to a source of power and/or transferring data (e.g. music) to the digital music player. Many digital music players have graphical displays and, in such, when part of the data transferred includes text and/or images, the text and/or images are selectively displayed on the graphical display. For Karaoke content, the data transferred includes lyrics linked to music and, during playback of the music, the lyrics are displayed on the graphical display.

Throughout the description, the term sound system, Karaoke system, etc, describe a system that generally operates in conjunction with the digital music player to, for example, amplify the sound from the digital music player, synchronize music/data with the digital music player, mix sound from a microphone with the sound from the digital music player, etc. Many such systems include a processor to perform these functions and other functions. In some embodiments, the sound system is a computer system with, for example, speakers and a microphone connected.

Referring to FIG. **1**, an isometric view of a digital music player cradle with a first type of attachment mechanism is described. The digital music player cradle **10** accommodates a variety of digital music players of various widths and thicknesses, thereby eliminating the need for multiple cradles or adapter inserts as provided in the past. The digital music player cradle **10** has a base **12**, a cavity **18** for containing an end of the digital music player and a support wall **14** for supporting the digital music player, preferably on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold a clip-on micro-sized music player (not shown). For attaching to a playback system, such as a Karaoke system, mounting posts **19** are attached to the front surface of the base **12**. These mounting posts **19** slide into key holes **21** (see FIG. **10**) on the playback system; for example, on the Karaoke system **110** (see FIG. **10**).

Referring to FIG. **1**A, an isometric view of a digital music player cradle **10** with a second type of attachment mechanism is described. The digital music player cradle **10** accommodates a variety of digital music players of various widths and thicknesses, thereby eliminating the need for multiple cradles or adapter inserts as provided in the past. The digital music player cradle **10** has a base **12**, a cavity **18** for containing an

end of the digital music player and a support wall **14** for supporting the digital music player, preferably on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold a clip-on micro-sized music player (not shown). For attaching to a playback system, such as a Karaoke system, mounting brackets **23** are attached to the front surface of the base **12**. These mounting brackets **23** slide into mating mounting slots **25** (see FIG. **12**) on the playback system; for example, on the Karaoke system **120** (see FIG. **12**).

In FIGS. **1** and **1**A, two different types of exemplary attachment mechanisms **19**/**21**/**23**/**25** are shown. Many other types of attachment mechanisms are anticipated including, but not limited to, hook and loop material, horizontal clips, snaps, etc. It is preferred, though not required, that the attachment mechanism provide for attachment in an upright position (as shown in FIGS. **8**-**13**) and in an inverted position (as shown in FIG. **14**).

Referring to FIG. **2**, an isometric view of a digital music player cradle **10** from the back is described. Again, the digital music player cradle **10** accommodates a variety of digital music players of various widths and thicknesses without requiring inserts or removable sections. The digital music player cradle **10** has a base **12**, a cavity **18** for containing an end of the digital music player (not shown) and a support wall **14** for supporting the digital music player, preferably on a slight slant towards the rear. In some embodiments, a pair of rear clip indentations **17** is provided to hold a clip-on micro-sized music player (not shown).

In some embodiments, a cable trough **20** is provided to route a data cable from the digital music player (not shown). Often, the digital music player (not shown) has a connector for connecting to a computer for power and/or for transferring content through the data cable. As an example, many current digital music players have a connector for connecting to a Universal Serial Bus (USB) cable.

Referring to FIGS. **3** and **3**A, a cross-sectional view of a digital music player cradle **10** with attachment mechanisms are described. In this embodiment, the cavity **18** is shaped to hold the ends of three different digital music players, although any number greater than one is anticipated. An end of a larger-sized digital music player such as an Apple Corporation 80 GB iPod® or a Microsoft Corporation Zume™ fits within the outer cavity formed by a ledge **28**. An end of a medium-sized digital music player such as an Apple Corporation 30 GB iPod® fits within the middle sub-cavity formed by a ledge **26**. An end of a smaller-sized digital music player such as an Apple Corporation Nano® fits within the inner sub-cavity formed by a ledge **24**. Although shown having three ledges **24**/**26**/**28**, the present invention is not limited in the number of sizes of digital music players supported. Any number of digital music players from two digital music players is supportable by the present invention. Also, although shown fitting with Apple Corporation products, the digital music player cradle **10** is adaptable to any size and shape of digital music player. For attachment to some systems such as a Karaoke system **110** (see FIG. **10**), mounting posts **19** are attached/formed on the front surface of the base **12** shown in FIG. **3**. These mounting posts **19** slide into key holes **21** (see FIG. **10**) on the playback system; for example, on the Karaoke system **110** (see FIG. **10**). For physical attachment to audio playback system such as a Karaoke system **120** (see FIG. **12**), mounting brackets **23** are attached to the front surface of the base **12** as shown in FIG. **3**A. These mounting brackets **23** slide into mating mounting slots **25** (see FIG. **12**) on the playback system; for example, on the Karaoke system **120** (see FIG. **12**).

Referring to FIG. **4**, an isometric view of a digital music player **50** cradle holding a large-sized digital music player **50** is described. In this view, a large-sized digital music player **50** such as the Apple Corporation 80 GB iPod® or a Microsoft Corporation Zume™ is shown resting within the outer sub-cavity formed by the ledge **28** and resting on the support wall **14**. Many large-sized digital music players **50** have controls **54** for selecting songs, etc. and a display **52** for informing the user of various modes of operation. Also, many large-sized digital music players **50** have a connector into which a stereo headphone jack **34** with cable **32** is inserted. The data cable **30** is connected to the large-sized digital music player **50** by a connector similar to the connector **31** as shown in FIG. **6** (not visible in FIG. **4**). The present invention functions with or without a data cable **30** and connector **31** attached. Likewise, the present invention functions with or without an audio cable **32** attached.

Referring to FIG. **5**, an isometric view of a digital music player cradle holding a medium-sized digital music player **56** is described. In this view, a medium-sized digital music player **56** such as the Apple Corporation 30 GB iPod® is shown resting within the middle sub-cavity formed by the ledge **26** and resting on the support wall **14**. Many medium-sized digital music players **56** have controls **54** for selecting songs, etc. and a display **52** for informing the user of various modes of operation. Also, many medium-sized digital music players **56** have a connector into which a stereo headphone jack **34** with cable **32** is inserted. The data cable **30** is connected to the medium-sized digital music player **56** by a connector similar to the connector **31** as shown in FIG. **6** (not visible in this figure).

Referring to FIG. **6**, an isometric view of a digital music player cradle holding a small-sized digital music player is described. In this view, a smaller-sized digital music player **58** such as the Apple Corporation Nano® is shown resting within the inner sub-cavity formed by the ledge **24** and resting on the support wall **14**. In such a position, the smaller-sized digital music player **58** is supported with the controls facing forward and accessible while in the cradle **10**. Many smaller-sized digital music players **58** have controls **54** for selecting songs, etc. and a display for informing the user of various modes of operation **52**. Also, many smaller-sized digital music players **58** have a connector into which a stereo headphone jack **34** with cable **32** is inserted. The data cable **30** is connected to the smaller-sized digital music player **58** by a connector **31**. The present invention functions with or without a data cable **30** and connector **31** attached. Likewise, the present invention functions with or without an audio cable **32** attached. For some digital music players such as the smaller-sized digital music player **58**, the orientation of the data connector **31** makes it difficult to rest properly in an upright position within the digital music player cradle **10**. In such cases, the smaller-sized digital music player **58** rests in an upside-down configuration as shown in FIG. **6**, still providing the benefit of supporting the smaller-sized digital music player **58**.

Referring to FIG. **7**, an isometric view of a digital music player cradle holding a micro-sized digital music player is described. Some micro-sized (or clip-on) digital music players **60** are very small and are designed to clip onto a user's clothing. Often, these micro-sized digital music players **60** such as the Apple Corporation Mini, have no display and only a control **64** for initiating the playing of audio, etc. To support micro-sized digital music players **60**, a pair of front clip indentations **16** and a pair of rear clip indentations **17** are provided. Using these clip indentations **16**/**17**, a clip of the micro-sized digital music player **60** clips onto the support

wall **14** and the edges of each side of the micro-sized digital music player's **60** clip is held within the clip indentations **16/17**. Without the clip indentations, the micro-sized digital music player's **60** clip would not stay in place, especially if the digital music player cradle **10** is made from a slippery, plastic material. As stated previously, the present invention functions with one set of clip indentations **16/17**, two sets of clip indentations **16/17** and without any clip indentations **16/17**, depending upon the types and styles of digital music players supported and the materials used for the cradle **10**.

Referring to FIGS. **8** and **9**, a rear and front isometric view of a digital music player cradle attached to a Karaoke system are shown. In this embodiment, the digital music player cradle **10** is part of and/or permanently affixed to the back surface of a music system such as a Karaoke system **100**. In some embodiments, the cradle **10** is molded as part of the music system **100** while in other embodiments, the cradle **10** is affixed to the back surface of the music system **100** using glue, fasteners, ultrasonic welding, etc.

Referring to FIGS. **10** and **11**, a rear and front isometric view of a Karaoke system **110** are shown. In this example, the first exemplary attachment mechanism is used to attach the digital music player cradle **10** to a music system such as a Karaoke system **110**. In such, the digital music player cradle **10** has a plurality of keys **19** that mate with key holes **21** in the Karaoke system **110**. Alternately, it is anticipated that the keys **19** are on the Karaoke system **110** and the key holes **21** are in the digital music player cradle **10**. It is preferred that the keys **19** are on the digital music player cradle **10** and the key holes **21** are in the Karaoke system **110** because replacement of the digital music player cradle **10** is of lower cost should a key **19** break off.

Referring to FIGS. **12** and **13**, a rear and front isometric view of a Karaoke system **120** are shown. In this example, the second exemplary attachment mechanism is used to attach the digital music player cradle **10** to a music system such as a Karaoke system **120**. In such, the digital music player cradle **10** has a plurality of mounting brackets **23** that mate with mating mounting slots **25** in the Karaoke system **120**. Alternately, it is anticipated that the mounting brackets **23** are on the Karaoke system **120** and the mating mounting slots **25** are in the digital music player cradle **10**. It is preferred that the mounting brackets **23** are on the digital music player cradle **10** and the mating mounting slots **25** are in the Karaoke system **120** because replacement of the digital music player cradle **10** is of lower cost should a mounting brackets **23** break off.

Referring to FIG. **14**, a rear isometric view of a music system (Karaoke system) **120** showing the attachment of a digital music player cradle **10** in an alternate position for storage when not in use is shown. Although not required, the mounting mechanism **19/21/23/25** is symmetrical (as in FIGS. **10-13**) such that the digital music player cradle **10** mates with the music system (e.g. Karaoke system **110/120**) upright or inverted. The inverted position is useful for storing the digital music player cradle **10** when not in use.

Equivalent elements can be substituted for the ones set forth above such that they perform in substantially the same manner in substantially the same way for achieving substantially the same result.

It is believed that the system and method and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely exemplary and explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes.

What is claimed is:

1. A digital music player cradle for supporting a plurality of digital music players of different sizes onto a sound system, the digital music player cradle comprising:

a base;

a cavity in an upper surface of the base, the cavity accepts an end portion of a largest digital music player of the plurality digital music players;

a support wall extending from an upper rear surface of the base for supporting one of the digital music players;

a plurality of ledges within the cavity, the ledges forming decreasingly sized sub-openings towards a bottom of the cavity, whereas each sub-opening is sized corresponding to a different one of the plurality of digital music players;

an attachment mechanism on a front surface of the base, the attachment mechanism connecting with a mating attachment mechanism on the sound system, thereby holding the digital music player cradle to the sound system.

2. The digital music player cradle of claim **1**, wherein the multiple digital music players consists of a large-sized digital music player, a medium-sized digital music player and a small-sized digital music player.

3. The digital music player cradle of claim **1**, wherein the support wall has at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player.

4. The digital music player cradle of claim **1**, wherein the attachment mechanism is a plurality of mounting brackets on the digital music player cradle and a plurality of mating slots on the music system.

5. The digital music player cradle of claim **1**, wherein the attachment mechanism is a plurality of mounting posts on the digital music player cradle and a plurality of mating key holes on the music system.

6. The digital music player cradle of claim **1**, wherein the attachment mechanism on a front surface of the base and the mating attachment mechanism on the sound system hold the digital music player cradle to the sound system in two positions, an upright position and an opposite position.

7. A method of supporting multiple digital music players in a sound system, the method comprising:

providing a digital music player cradle for supporting any one digital music player of the multiple digital music players, the digital music player cradle comprising:

a base;

a cavity in an upper surface of the base, the cavity accepts and holds an end portion of a largest digital music player of the multiple digital music players;

a support wall extending from an upper rear surface of the base for supporting one of the multiple digital music players at a time;

a plurality of ledges within the cavity, the ledges forming decreasingly sized sub-openings towards a bottom of the cavity, whereas each ledge/sub-opening is sized to hold a different one of the multiple digital music players;

an attachment mechanism on a front surface of the base, the attachment mechanism connecting with a mating attachment mechanism on the sound system, thereby holding the digital music player cradle to the sound system;

interfacing the attachment mechanism to the mating attachment mechanism, thereby attaching the base of the digital music player cradle to the sound system;

connecting a first digital music player of the multiple digital music players to a first end of a data cable, a second end of the data cable connected to the sound system;

inserting a first end of the first digital music player into the cavity resting in a first sub-opening of the sub-openings, a back side of the first digital music player resting against the support wall;

removing the first digital music player from the cavity;

disconnecting first end of the data cable from the first digital music player;

connecting a second digital music player of the multiple digital music players to the first end of the data cable, the second digital music player having a different size than the first digital music player; and

inserting a first end of the second digital music player into the cavity in a second sub-opening of the sub-openings, a back side of the second digital music player resting against the support wall.

8. The method of claim **7**, wherein the first digital music player is a large-sized digital music player and the second digital music player is a small-sized digital music player.

9. The method of claim **7**, wherein the support wall has at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player and the support wall has at least one rear-clip indentation running substantially horizontal on a back surface for supporting the clip-on digital music player.

10. The method of claim **7**, wherein the sound system is a Karaoke system.

11. The method of claim **7**, wherein the sound system is a computer system and the data cable is a Universal Serial Bus cable for connecting to a computer system.

12. A digital music player cradle for supporting multiple digital music players, the digital music player cradle comprising:

a base;

a means for accepting an end portion of a digital music player of the multiple digital music players;

a means for supporting the digital music player extending from an upper surface of the base;

a stepped means for supporting the multiple digital music players within the means for supporting the digital music player, the stepped means for supporting the multiple digital music players including ledges that form decreasing sized sub-openings towards a bottom of the means for supporting the digital music player, whereas each sub-opening is sized to hold a different one of the multiple digital music players; and

a means for removably attaching the base to a sound system.

13. The digital music player cradle of claim **12**, wherein the multiple digital music players consists of a large-sized digital music player, a medium-sized digital music player and a small-sized digital music player.

14. The digital music player cradle of claim **12**, wherein the means for removably attaching the base to a sound system is a plurality of mounting brackets on the digital music player cradle and a plurality of mating slots on the music system.

15. The digital music player cradle of claim **12**, wherein the means for removably attaching the base to a sound system is a plurality of mounting posts on the digital music player cradle and a plurality of mating key holes on the music system.

16. The digital music player cradle of claim **12**, wherein the means for removably attaching the base to a sound system is hook material on the digital music player cradle and a loop material on the music system.

17. The digital music player cradle of claim **12**, wherein the data cable is a Universal Serial Bus cable for connecting to a computer system.

18. The digital music player cradle of claim **12**, wherein the sound system is a Karaoke system.

19. The digital music player cradle of claim **12**, wherein a first digital music player of the multiple digital music players is wider than a second digital music player of the multiple digital music players.

20. The digital music player cradle of claim **12**, wherein a first digital music player of the multiple digital music players is thicker than a second digital music player of the multiple digital music players.

* * * * *

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(12) **United States Patent**
Strauser

(10) **Patent No.: US 8,432,667 B2**
(45) **Date of Patent: *Apr. 30, 2013**

(54) **SYSTEM, METHOD AND APPARATUS FOR SUPPORTING AND PROVIDING POWER TO A MUSIC PLAYER**

(76) Inventor: **Jack Strauser**, Pinellas Park, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 265 days.

This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

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(51) **Int. Cl.**
H05K 7/14 (2006.01)

(52) **U.S. Cl.**
USPC **361/679.01**; 361/679.41; 248/201

(58) **Field of Classification Search** 361/679.01, 361/679.02, 679.41, 679.55–679.58; 455/575.1–575.4; 379/433.11–433.13; D14/496, D14/497; 248/316.7, 201; 700/94
See application file for complete search history.

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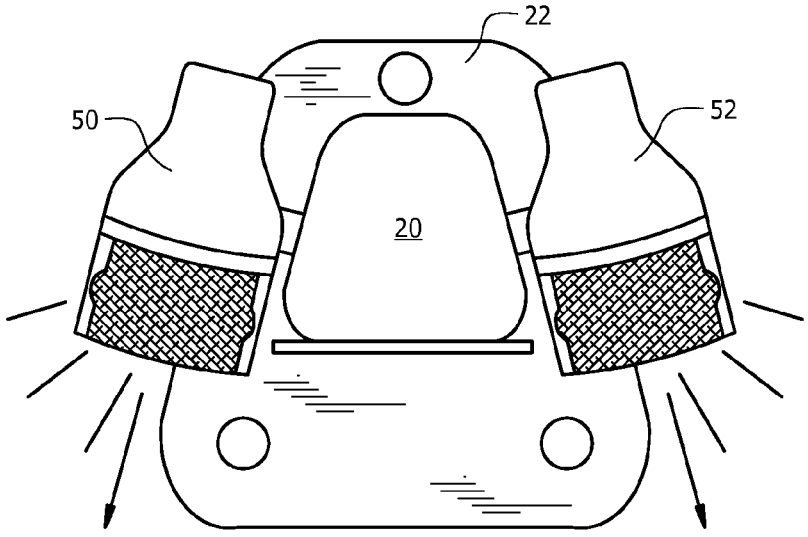
Primary Examiner — Jinhee Lee
Assistant Examiner — Ingrid Wright
(74) *Attorney, Agent, or Firm* — Larson & Larson, P.A.; Frank Liebenow; Justin P. Miller

(57) **ABSTRACT**

An audio device supports a variety of digital music players and includes a cradle that physically holds any of a plurality of digital music players. A power port on the audio device provides power to a selected one of the digital music players, through a cable that is specific to the selected digital music player through a cable that connects between the power port and the selected digital music player while the selected digital music player is held within the cradle.

17 Claims, 8 Drawing Sheets



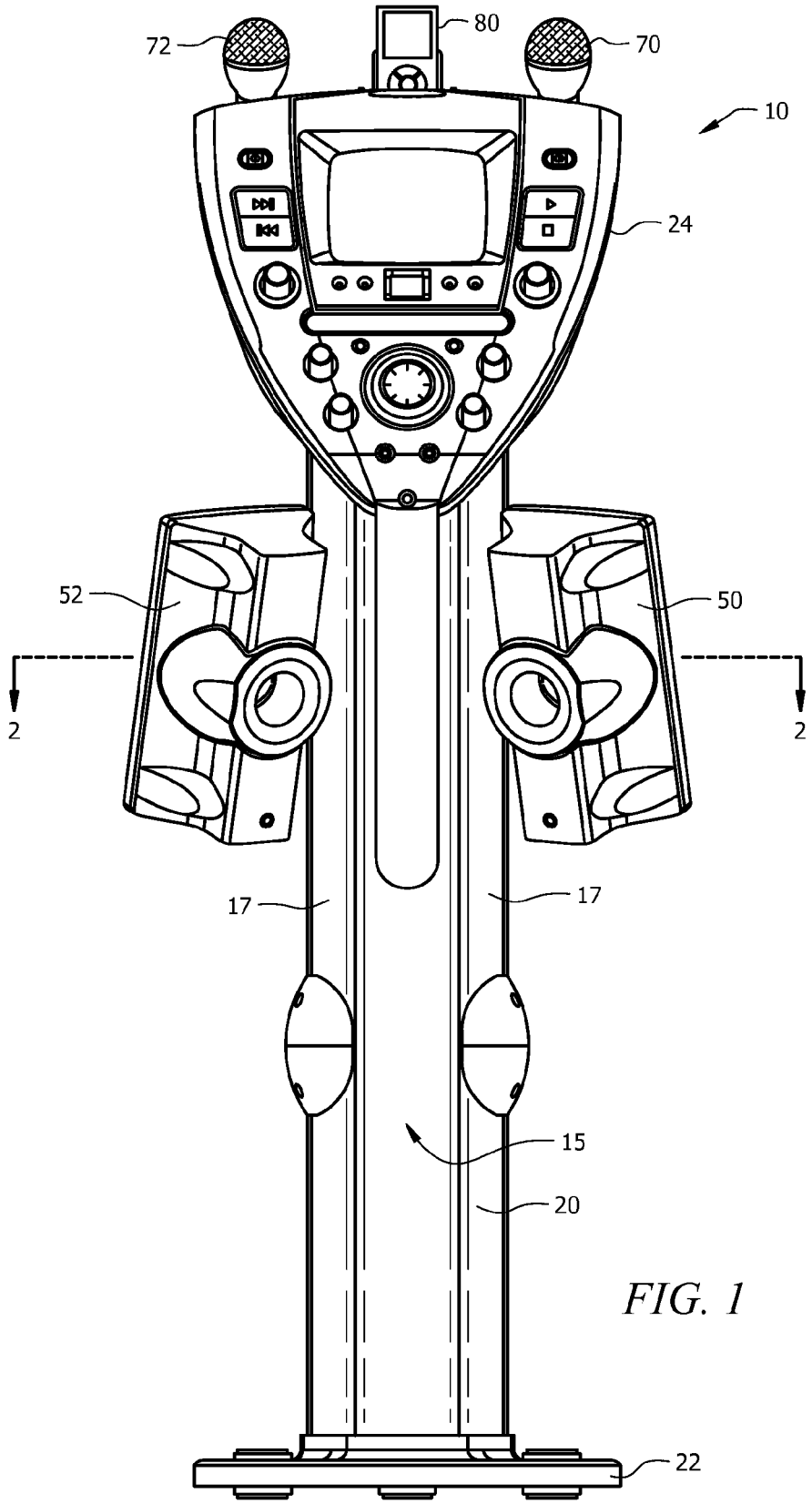


FIG. 1

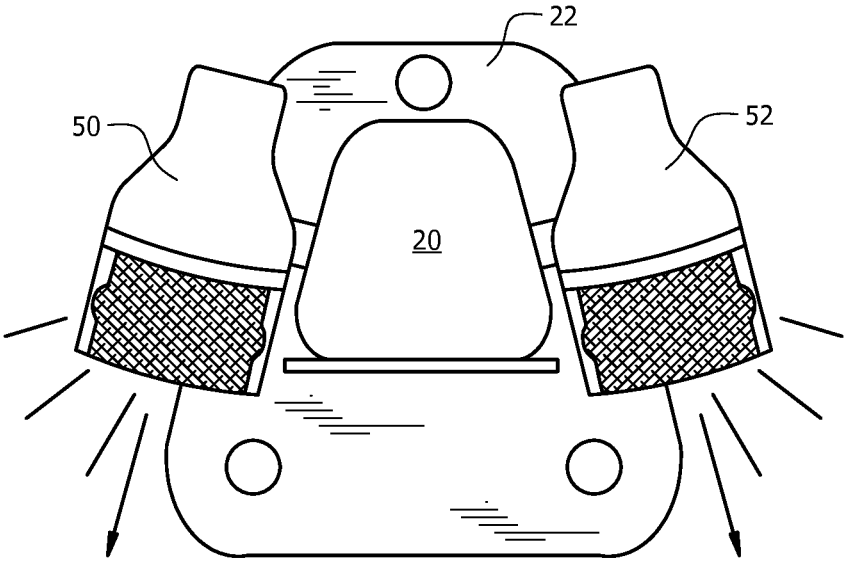


FIG. 2A

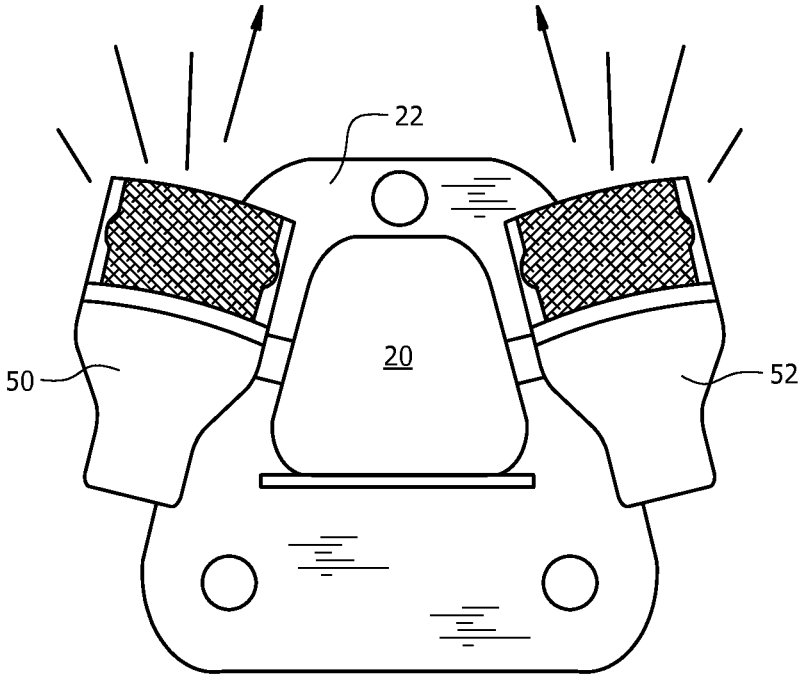


FIG. 2B

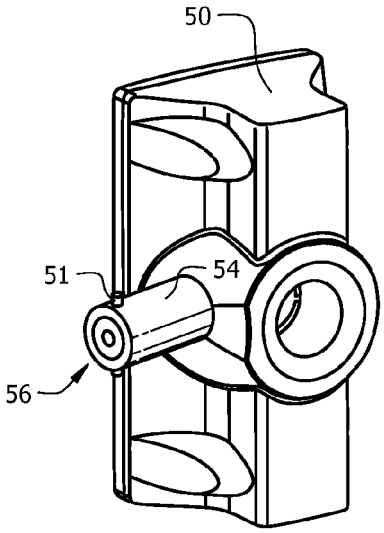


FIG. 3

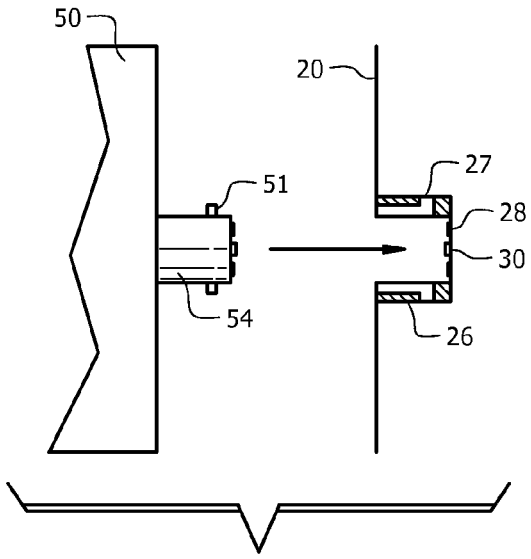


FIG. 4

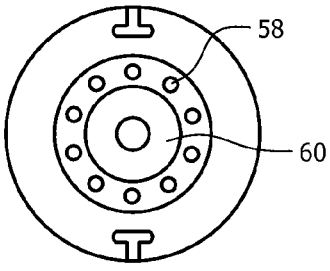


FIG. 5

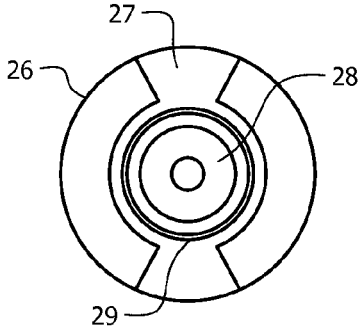


FIG. 6

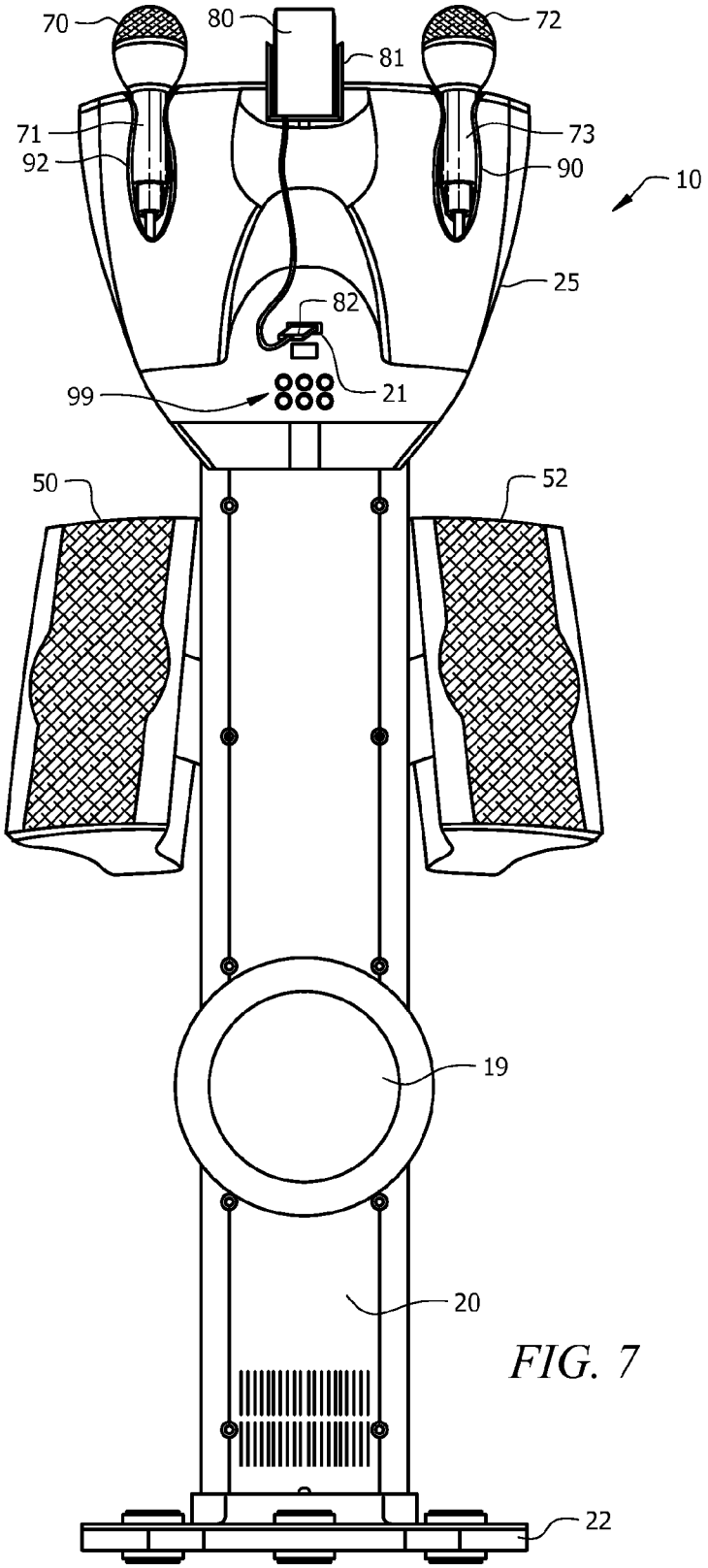


FIG. 7

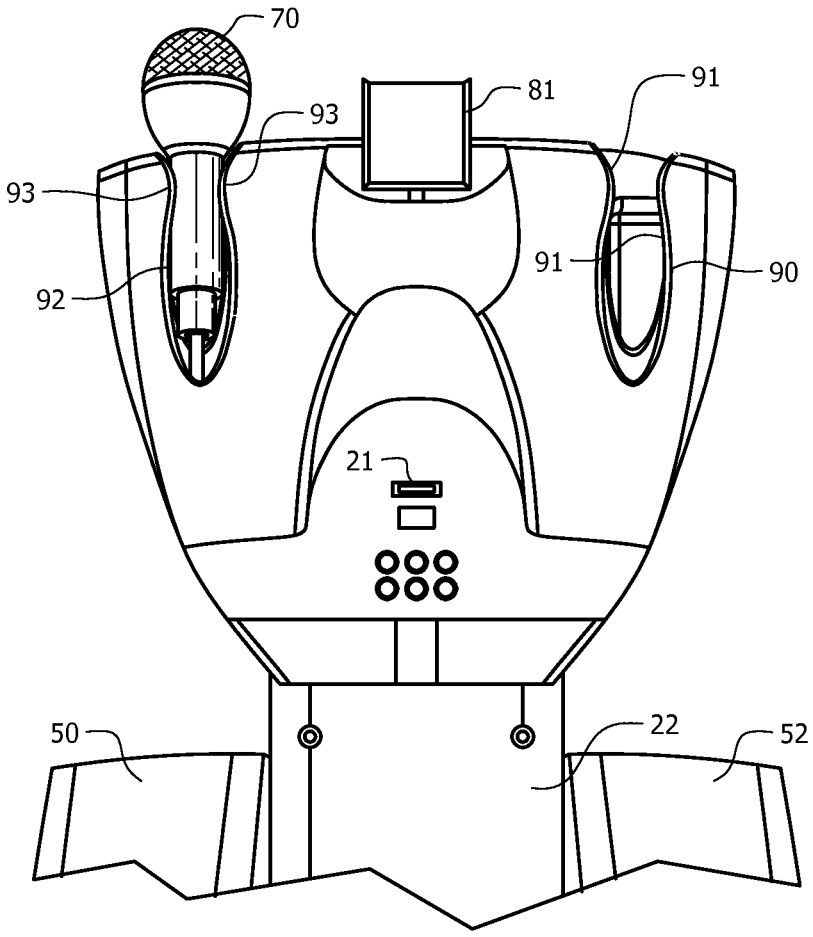


FIG. 8

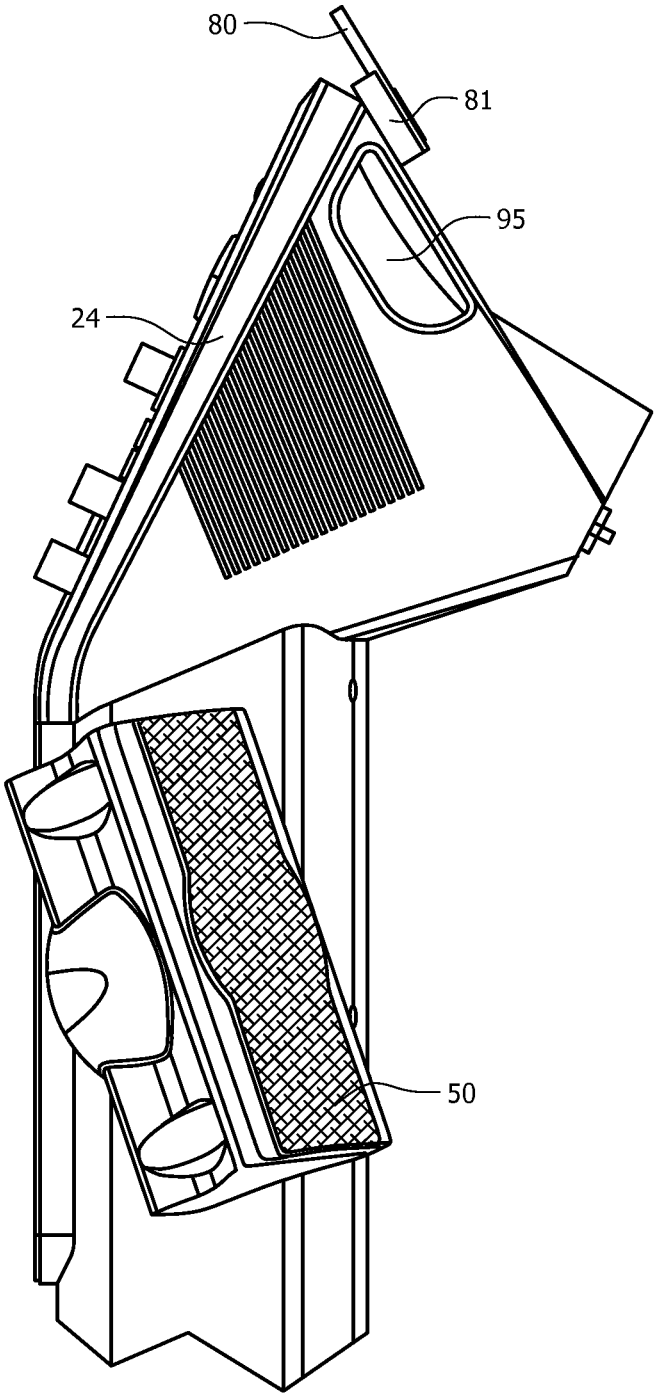


FIG. 9

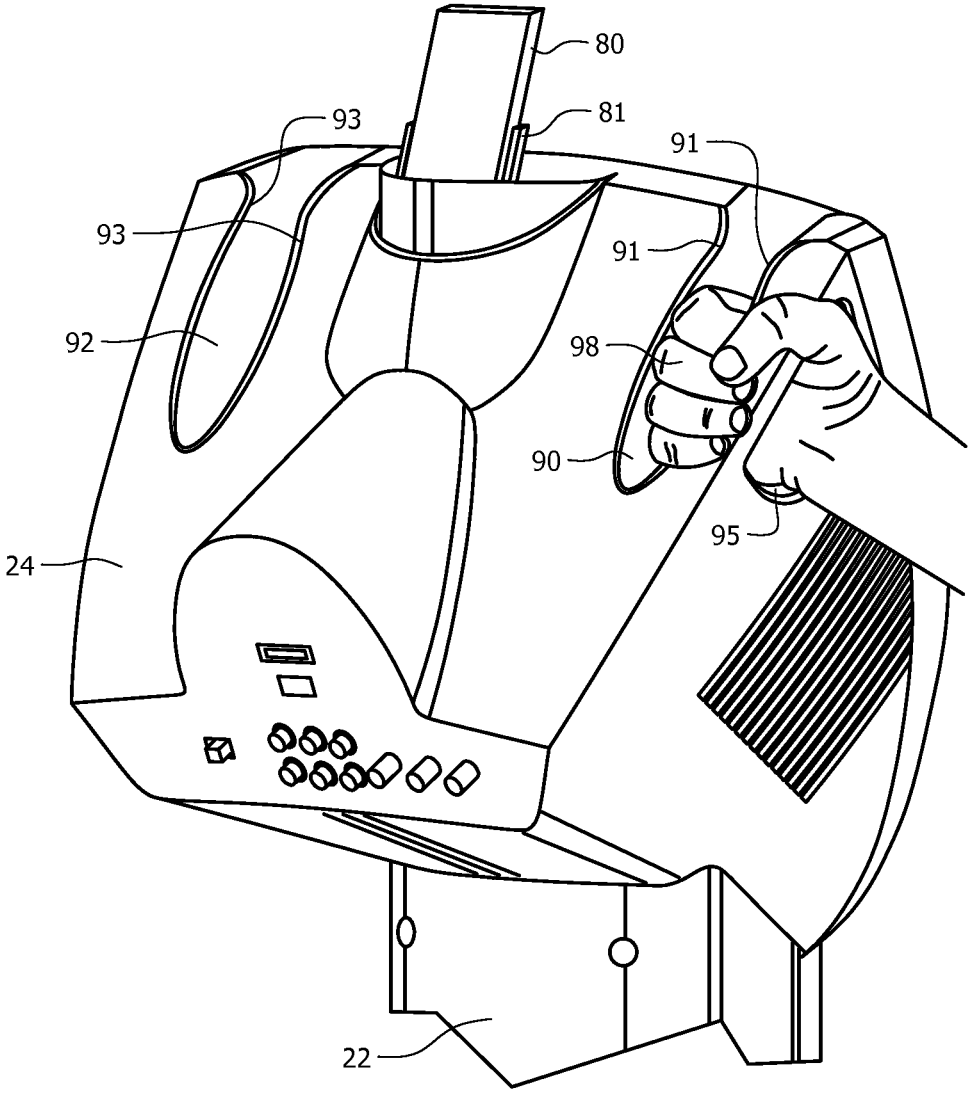


FIG. 10

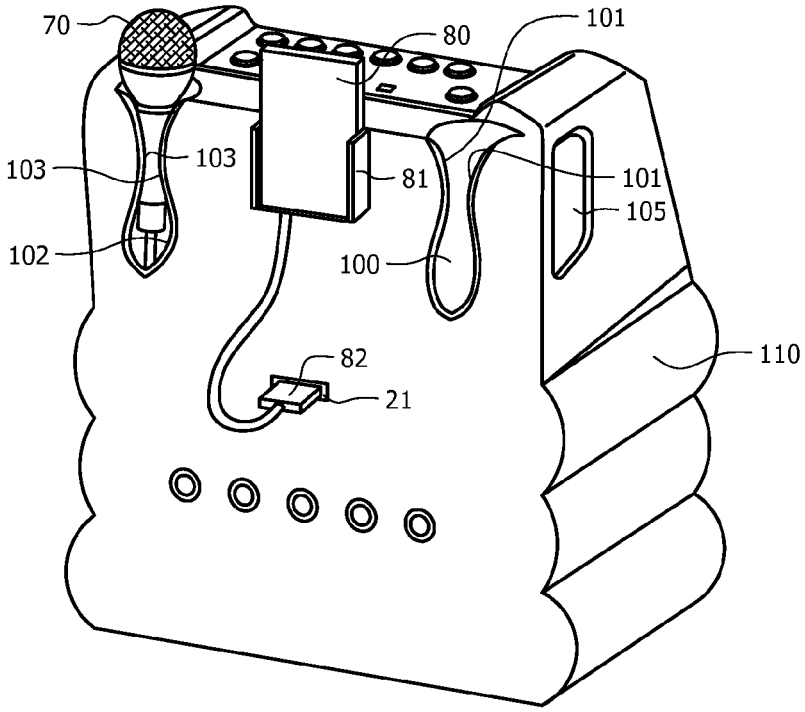


FIG. 11

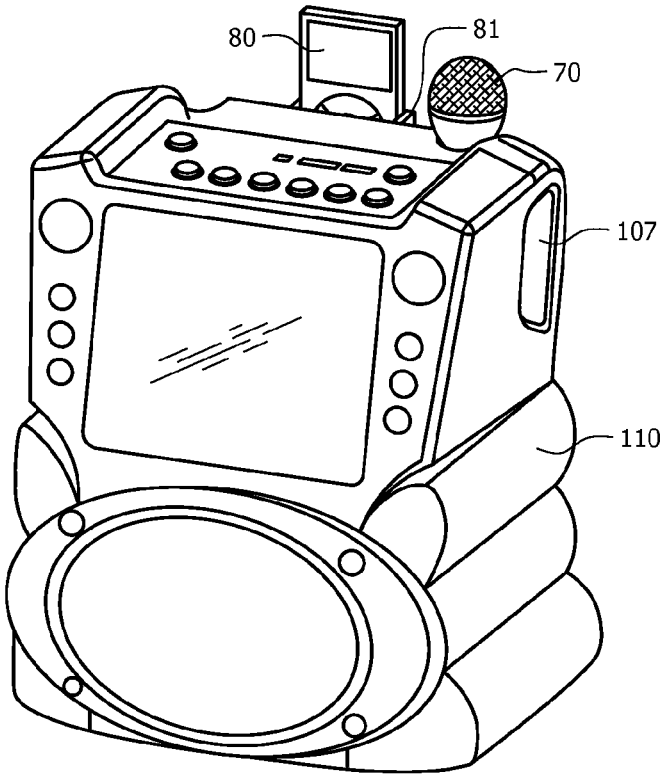


FIG. 12

SYSTEM, METHOD AND APPARATUS FOR SUPPORTING AND PROVIDING POWER TO A MUSIC PLAYER

CROSS-REFERENCE TO RELATED APPLICATION

This application is related to a co-pending application, filed even date, 12/889,941, titled, "SYSTEM, METHOD AND APPARATUS FOR DIRECTIONAL SPEAKERS". This application is also related to a co-pending application, filed even date, 12/889,951, titled, "SYSTEM, METHOD AND APPARATUS FOR HOLDING A DEVICE AND CONTAINING A MICROPHONE."

This application is a continuation-in-part of co-pending application Ser. No. 12/699,078, filed on Feb. 3, 2010 and titled "DIGITAL MUSIC PLAYER CRADLE ATTACHMENT", the content of which is included by reference.

FIELD

This invention relates to the field of audio devices and more particularly to an audio system with a cradle for supporting digital music players and providing power to such.

BACKGROUND

Many existing audio devices such as portable stereo systems and portable karaoke systems have cradles that accept portable music players. In such, the portable music player connects through a plug in the cradle that is proprietary to the audio device. Power is provided to the portable music player through the jack and audio is communicated from the portable music player to the audio device through the jack.

Being that the plug is an integral part of the cradle; the cradle/jack system only operates for one or a limited number of portable music players. For example, some recent audio devices have a cradle that only accepts a certain portable music player such as an iPOD Nano. If it is desired to use a different portable music player, there is no way to connect and/or support the different portable music player through the cradle/jack system. Instead, the non-supported portable music player must be connected to audio inputs through audio cables and, since it does not fit in the cradle, it rests on a nearby surface. The non-supported portable music player does not receive power through the audio cables and requires an additional cable to a source of power such as a wall-wart power supply.

What is needed is an audio system that holds and provides power directly to a variety of possible devices when one of such devices are supported in a cradle.

SUMMARY

In one embodiment, an audio system that supports a plurality of digital music players of different sizes is disclosed including a cradle that has a cavity that supports at least one of the digital music player. The cradle has a cavity for accepting a connector and the connector interfaces to the digital music player and passes power to the digital music player. The audio system has a power port for providing power to the connector through a wire, and, therefore, power to the digital music player. The cradle includes a base for supporting the cavity. The cavity is in an upper surface of the base and accepts an end portion of a largest digital music player of the plurality digital music players. A support wall extends from an upper rear surface of the base for supporting one of the digital music players and there is at least one ledge within the cavity. The at least one ledge forms decreasingly sized sub-openings towards a bottom of the cavity, whereas each sub-opening is sized corresponding to a different one of the plurality of digital music players.

In another embodiment, a method of supporting digital music players in an audio system is disclosed including providing a cradle for supporting the digital music player. A base of the cradle is attached to the audio system. The cradle has a cavity for accepting an end portion of the digital music player. The method includes connecting a first digital music player to a first end of a data cable and connecting a second end of the data cable to a power port of the audio system. The first digital music player is placed into the cavity and one or more audio cables are connected between the first digital music player and the audio system. The cavity accepts and holds an end portion of a largest digital music player and has a support wall extending from an upper rear surface of the base for supporting one of multiple digital music players at a time. At least one ledge is formed within the cavity. The ledge(s) form decreasingly sized sub-openings towards a bottom of the cavity, whereas each ledge/sub-opening is sized to hold a different one of the multiple digital music players.

In another embodiment, an audio device that supports a variety of digital music players is disclosed. The audio device includes a cradle that physically holding any of the digital music players. A power port on the audio device provides power to a selected digital music player, through a cable that is specific to that digital music player. The cable connects between the power port and the selected digital music player while the elected digital music player is held within the cradle. The cradle has a base, a system for accepting an end portion of a digital music player of the multiple digital music players, and wall for supporting the digital music player extending from an upper surface of the base. The system for accepting has a stepping for supporting multiple digital music players within the system for supporting the digital music player. The stepping supports the multiple digital music players and includes at least one ledge that forms decreasing sized sub-openings towards a bottom of the means for supporting the digital music player, whereas each sub-opening is sized to hold a different one of the multiple digital music players.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

FIG. **1** illustrates a front perspective view of a directional speaker system.

FIG. **2**A illustrates a top view of the directional speaker system with speakers facing an audience.

FIG. **2**B illustrates a top view of the directional speaker system with speakers facing a performer.

FIG. **3** illustrates a perspective view of a keyed rotating attachment system.

FIG. **4** illustrates a cutaway view of a keyed rotating attachment system.

FIG. **5** illustrates a perspective view of an electrical interface of the rotating attachment system.

FIG. **6** illustrates a perspective view of a mating electrical interface of the rotating attachment system.

FIG. **7** illustrates a rear perspective view of the system.

FIG. **8** illustrates a rear perspective view of the system showing handle/microphone storage in detail.

FIG. **9** illustrates a side perspective view of the system.

FIG. **10** illustrates a rear perspective view of the system showing handle/microphone in use as a handle.

FIG. **11** illustrates a rear perspective view of another exemplary system showing handle/microphone storage in detail.

FIG. **12** illustrates a front perspective view of the second exemplary system showing a microphone in storage.

DETAILED DESCRIPTION

Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Throughout the following detailed description, the same reference numerals refer to the same elements in all figures.

Referring to FIGS. **1**, **2**A, **2**B, perspective view of a directional speaker system is shown. For explanation purposes, a pedestal karaoke system **10** is used as an exemplary audio device. The elements of the disclosed invention are applicable to other portable and/or stationary devices and are not limited to a karaoke system.

The exemplary audio device (system) **10** has a system console **24** supported by a pedestal **20**. The system console **24** typically has controls (e.g. volume, play, stop, etc), displays and indicators. In this exemplary system **10**, music or karaoke content comes from a digital music player **80** that is inserted into a cradle **81** (see FIG. **8**) and connected to audio inputs **99** of the exemplary system **10**. In this example, there are two microphones **70**/**72** in dual-purpose handle/microphone holders **90**/**92** (see FIG. **7**).

In a preferred embodiment, the cradle **81** is stepped as disclosed in the parent application, "DIGITAL MUSIC PLAYER CRADLE ATTACHMENT," which is included by reference. Thereby, the cradle **81** supports a large variety of music players **80** of varying sizes and shapes. In such, the music player **80** sits in a cradle **81**. Power is provided from a power port (e.g. USB port) **21**, into which the power cable plug **82** (e.g. USB plug) is connected to provide power to the music player **80**. Although not shown, audio from the music player is connected to the audio input jacks **99** of the system **10**. In this way, the system **10** supports many different music players **80** from one or more manufactures and having different sizes, thicknesses and shapes. It is anticipated that the power cable/plug **82** is supplied by the manufacturer of the music player **80** since the music player end of the cable/plug **82** is often terminated with a proprietary connector.

The system is supported by a base **22**, preferably wider than the pedestal **20** to reduce the probability of tipping.

The pedestal **20** has side walls **17**. Preferably, the side walls **17** of the pedestal **20** are not parallel and purposely angle towards each other getting closer towards the front of the pedestal **15**, where the user typically stands. Two speakers **50**/**52** are rotatably mounted to the side walls **17** of the pedestal **20**. The speakers **50**/**52** are rotated to face away from the user (performer) as shown in FIG. **2**A when the user (performer) is using the system **10** with other people (e.g. an audience). Since the speakers **50**/**52** are angled outwardly due to the angle of the side walls **17**, sound from the speakers **50**/**52** diverge and produce sound that is better distributed to multiple listeners (e.g. the audience). The speakers **50**/**52** are rotated to face the user (performer) as shown in FIG. **2** when the user (performer) is not concerned with other people hearing the performance. Since the speakers **50**/**52** are angled inwardly due to the angle of the side walls **17**, sound from the speakers **50**/**52** converge to a point near the user (performer) and produce sound that is concentrated for the enjoyment of the user (performer).

Note that other mechanisms are anticipated that provide the same feature in which the speakers are directed outwardly (sound is aimed away from straight ahead) when facing away from the performer and in which the speakers are directed inwardly (sound is aimed to a focal point near the performer) when facing the performer. For example, in some embodiments, the sides of the pedestal **20** are parallel, but the rotating posts that support the speakers **50**/**52** are at an angle with respect to the side walls of the pedestal **20**. In some embodiments, more than two rotatable speakers **50**/**52** are anticipated (not shown).

Referring to FIGS. **3**-**6**, views of a keyed rotating attachment system is shown. In FIG. **3**, only one speaker **50** is shown (more than one speaker is anticipated). The speaker **50** has a rotating support post **54** that has one or more key posts **51**, In some embodiments, a speaker electrical interface **56** is provided to connect the speaker **50**/**52** to the audio outputs of the system **10** (details shown in FIGS. **5** and **6**). The key posts **51** slide into slots **27** of a cavity **26** of the system **10** when the speaker **50**/**52** is, for example, horizontal (90 degrees rotated from the position shown in FIG. **1**). Once inserted, the speakers **50**/**52** are rotated toward the audience (diverging) or toward the performer (converging), thereby locking the key posts **51** into the slots **27**. Any other way of a rotatable connection is anticipated, permanent or removable.

In some embodiments, electrical connections are provided to connect the speakers **50**/**52** to the audio outputs of the system **10**. There are many ways known to electrically connect a rotating device (e.g. a wind generator is rotatably mounted to a tower and electricity passes through the rotatable interface from the generator to the electrical connections at the ground). The example shown has two sets of connectors **58**/**60** on the speaker support post **54** that connect to contacts **28** and **29** in the cavity **26**.

Alternately, in some embodiments, the speakers **50**/**52** are electrically connected to the system **10** by wires (not shown) instead of through electrical connections associated with the rotating connection.

Referring to FIGS. **7**-**10**, perspective views of the system showing the combined handle/microphone feature will be described. In some embodiments, a music player **80** provides content (e.g. music, karaoke content, video, etc). In such, the music player **80** sits in a cradle **81**. For convenience, a power port (e.g. USB port) **21** is provided, into which the power cable plug **82** (e.g. USB plug) is connected to provide power to the music player **80**. Although not shown, audio from the music player is connected to the audio input jacks **99** of the system **10**.

In some embodiments, the system **10** includes a base speaker **19** (e.g. a sub-woofer), preferably mounted in the pedestal **20**.

Handles **71**/**73** of the microphones **70**/**72** are inserted into microphone holders **90**/**92** that double as handles **90**/**92**. A convex surface **91**/**93** of the microphone holders **90**/**92** that double as handles **90**/**92** keeps the microphone handles **71**/**73** from falling out while providing enough of an opening for a persons fingers **98** (see FIG. **10**) when using the microphone holders **90**/**92** that double as handles **90**/**92** as handles as shown in FIG. **10**. The sides of the system console **24** has a handle opening **95** through which the user's fingers **98** fit, wrapping through and out of the microphone holders **90**/**92** that double as handles **90**/**92**. The shape of the handle **90**/**91**/**92**/**93**/**95** is preferably, though not required, shaped to comfortably interface with a typical hand and fingers **98** of a person who carries the system **10**.

Referring to FIGS. **11** and **12**, perspective view of another exemplary system **110** showing handle/microphone storage

100/102 in detail will be described. For storage, the handles 71/73 of the microphones 70/72 (only one microphone 70 is shown) are inserted into microphone holders 100/102 that double as handles 100/102. A convex surface 101/103 of the microphone holders 100/102 that double as handles 100/102 keeps the microphone handles 71/73 from falling out while providing enough of an opening for a persons fingers when using the microphone holders 100/102 that double as handles 100/102 as handles as shown in FIG. 11. The sides of the exemplary system 110 has a handle opening 105/107 through which the user's fingers 98 fit, wrapping through and out of the microphone holders 100/102 that double as handles 100/102. The shape of the handle 100/101/102/103/105/107 is preferably, though not required, shaped to comfortably interface with a typical hand and fingers 98 of a person who carries the system 110.

In this exemplary system 110, music or karaoke content comes from a music player 80 that is inserted into a cradle 81 and connected to audio inputs of the exemplary system 110. In this example, there is one microphone 70 in a first dual-purpose handle/microphone holder 100 and the second dual-purpose handle/microphone holder 102 is empty.

In a preferred embodiment, the cradle 81 is stepped as disclosed in the parent application, "DIGITAL MUSIC PLAYER CRADLE ATTACHMENT," which is included by reference. Thereby, the cradle 81 supports a large variety of music players 80 of varying sizes and shapes. In such, the music player 80 sits in a cradle 81. Power is provided from a power port (e.g. USB port) 21, into which the power cable plug 82 (e.g. USB plug) is connected to provide power to the music player 80. Although not shown, audio from the music player is connected to the audio input jacks of the system 110. In this way, the system 110 supports many different music players 80 from one or more manufactures and having different sizes, thicknesses and shapes. It is anticipated that the power cable/plug 82 is supplied by the manufacturer of the music player 80 since the music player end of the cable/plug 82 is often terminated with a proprietary connector.

Equivalent elements can be substituted for the ones set forth above such that they perform in substantially the same manner in substantially the same way for achieving substantially the same result.

It is believed that the system and method as described and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely exemplary and explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes.

What is claimed is:

1. An audio system that supports a plurality of digital music players of different sizes, the audio system comprising:

a cradle, the cradle having a cavity to support at least one of the digital music players and the cradle having a cavity for accepting a connector, the connector interfacing to the digital music player and the connector passing power to the digital music player; and

a power port on the audio system, the power port providing power to the connector through a wire to the digital music player;

wherein the cradle comprises:

a base for supporting the cavity, the cavity is in an upper surface of the base, the cavity accepts an end portion of a largest digital music player of the plurality digital music players;

a support wall extending from an upper rear surface of the base for supporting one of the digital music players; and

at least one ledge within the cavity, the at least one ledge forming decreasingly sized sub-openings towards a bottom of the cavity, whereas each sub-opening is sized corresponding to a different one of the plurality of digital music players.

2. The audio system of claim 1, wherein the multiple digital music players consists of a large-sized digital music player, a medium-sized digital music player and a small-sized digital music player.

3. The audio system of claim 1, wherein the support wall has at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player.

4. The audio system of claim 1, wherein the cradle is attached to the audio system by a plurality of mounting brackets on the cradle and an equal number of mating slots on the audio system.

5. The audio system of claim 1, wherein the cradle is attached to the audio system by a plurality of mounting posts on the cradle and a plurality of mating key holes on the audio system.

6. A method of supporting digital music players in an audio system, the method comprising:

providing a cradle for supporting the digital music player, the cradle comprising:

a base, the base attached to the audio system;

a cavity in an upper surface of the base, the cavity accepts and holds an end portion of the digital music player, the cavity accepts and holds an end portion of a largest digital music player; a support wall extends from an upper rear surface of the base for supporting one of multiple digital music players at a time; at least one ledge is within the cavity, the at least one ledge forms decreasingly sized sub-openings towards a bottom of the cavity, whereas each ledge/sub-opening is sized to hold a different one of the multiple digital music players;

connecting a first digital music player to a first end of a data cable;

connecting a second end of the data cable to a power port of the audio system;

inserting the first digital music player into the cavity;

connecting one or more audio cables between the first digital music player and the audio system;

removing the first digital music player from the cavity;

disconnecting first end of the data cable from the first digital music player;

connecting a second digital music player of the multiple digital music players to the first end of the data cable, the second digital music player having a different size than the first digital music player; and

inserting a first end of the second digital music player into the cavity in a second sub-opening of the sub-openings, a back side of the second digital music player resting against the support wall.

7. The method of claim 6 further comprising an attachment mechanism on a front surface of the base, the attachment mechanism connecting with a mating attachment mechanism on the audio system, thereby removably holding the cradle to the sound system.

8. The method of claim **7**, wherein the support wall has at least one front-clip indentation running substantially horizontal on a front surface for supporting a clip-on digital music player and the support wall has at least one rear-clip indentation running substantially horizontal on a back surface for supporting the clip-on digital music player.

9. The method of claim **6**, wherein the first digital music player is a large-sized digital music player and the second digital music player is a small-sized digital music player.

10. The method of claim **6**, wherein the audio system is a Karaoke system.

11. The method of claim **6**, wherein the data cable is a Universal Serial Bus cable.

12. An audio device that supports digital music players, the audio device comprising:

a cradle, the cradle physically holding the digital music player, the cradle comprising a base, a means for accepting an end portion of a digital music player of the multiple digital music players, and a means for supporting the digital music player extending from an upper surface of the base, and a stepped means for supporting multiple digital music players within the means for supporting the digital music player, the stepped means for supporting the multiple digital music players including at least one ledge that forms decreasing sized sub-openings towards a bottom of the means for supporting the digital music player, whereas each sub-opening is sized to hold a different one of the multiple digital music players;

a power port, the power port providing power that powers the digital music player, the power is provided through a cable that is specific to the digital music player and the cable connects between the power port and the digital music player that is held within the cradle.

13. The audio device of claim **12**, wherein the cradle is removably attached to the audio device.

14. The audio device of claim **13**, wherein the cradle is removably attached to the audio device by a plurality of mounting brackets on the cradle and a plurality of mating slots on the audio device.

15. The audio device of claim **13**, wherein the cradle is removably attached to the audio device by a plurality of mounting posts on the cradle and a plurality of mating key holes on the audio device.

16. The digital music player cradle of claim **13**, wherein the cradle is removably attached to the audio device by hook material on the cradle and loop material on the audio device.

17. The audio device of claim **12**, wherein the multiple digital music players consists of a large-sized digital music player, a medium-sized digital music player and a small-sized digital music player.

* * * * *

US008593804B2

(12) **United States Patent**
Strauser

(10) **Patent No.: US 8,593,804 B2**
(45) **Date of Patent: Nov. 26, 2013**

(54) **SYSTEM, METHOD AND APPARATUS FOR HOLDING MULTIPLE DEVICES**

(76) Inventor: **Jack Strauser**, Pinellas Park, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 192 days.

(21) Appl. No.: **13/346,018**

(22) Filed: **Jan. 9, 2012**

(65) **Prior Publication Data**

US 2012/0106304 A1 May 3, 2012

Related U.S. Application Data

(63) Continuation-in-part of application No. 12/699,078, filed on Feb. 3, 2010, now Pat. No. 8,116,077, which is a continuation-in-part of application No. 11/676,850, filed on Feb. 20, 2007, now Pat. No. 7,742,293, and a continuation-in-part of application No. 13/373,076, filed on Nov. 3, 2011.

(51) **Int. Cl.**

H05K 5/00	(2006.01)
H05K 7/00	(2006.01)
G06F 1/16	(2006.01)

(52) **U.S. Cl.**
USPC **361/679.41**; 361/679.4; 361/679.44

(58) **Field of Classification Search**
USPC 361/679.01, 679.4, 679.41, 679.44
See application file for complete search history.

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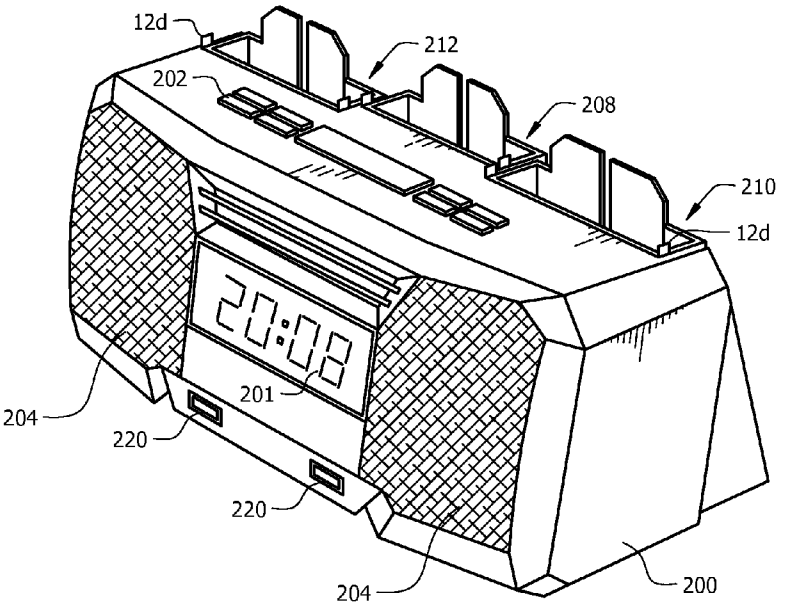
Primary Examiner — Anthony Haughton
(74) *Attorney, Agent, or Firm* — Larson & Larson, P.A.; Frank Liebenow; Justin P. Miller

(57) **ABSTRACT**

A consumer electronic system for concurrently holding and providing power to several consumer electronic devices has several cradles in a staggered configuration. At least one of the cradles is positioned behind at least one other of the cradles. Thereby the cradle positioned behind the at least one other cradles is capable of supporting a larger consumer electronic device without blocking the at least one other cradle. The support walls of the at least one other cradles provides a surface that supports the larger consumer electronic device, keeping the larger consumer electronic device from sliding forward.

20 Claims, 7 Drawing Sheets



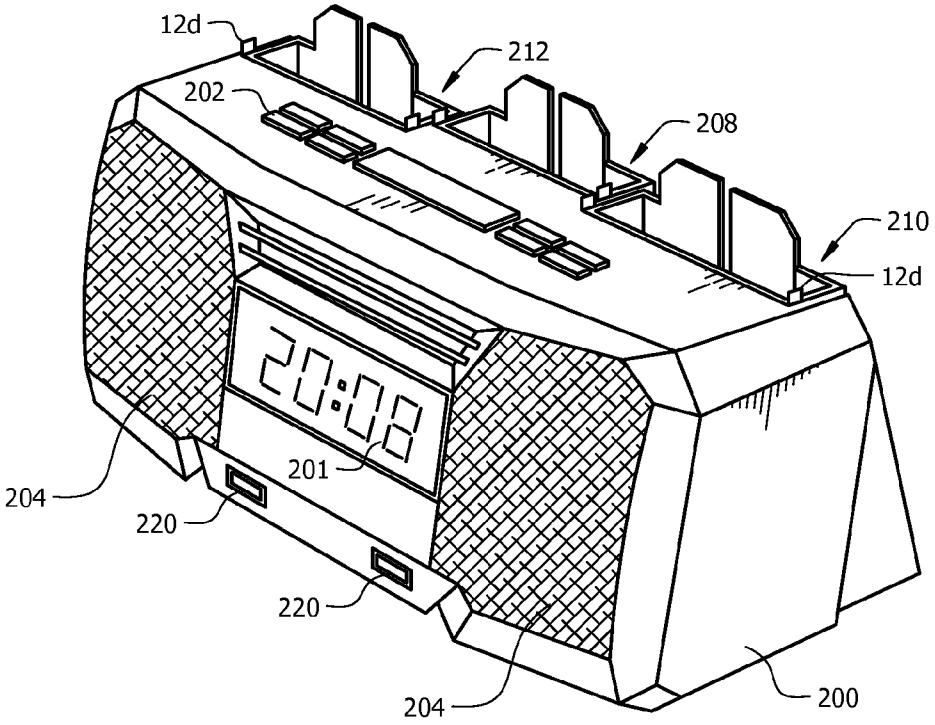

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FIG. 1

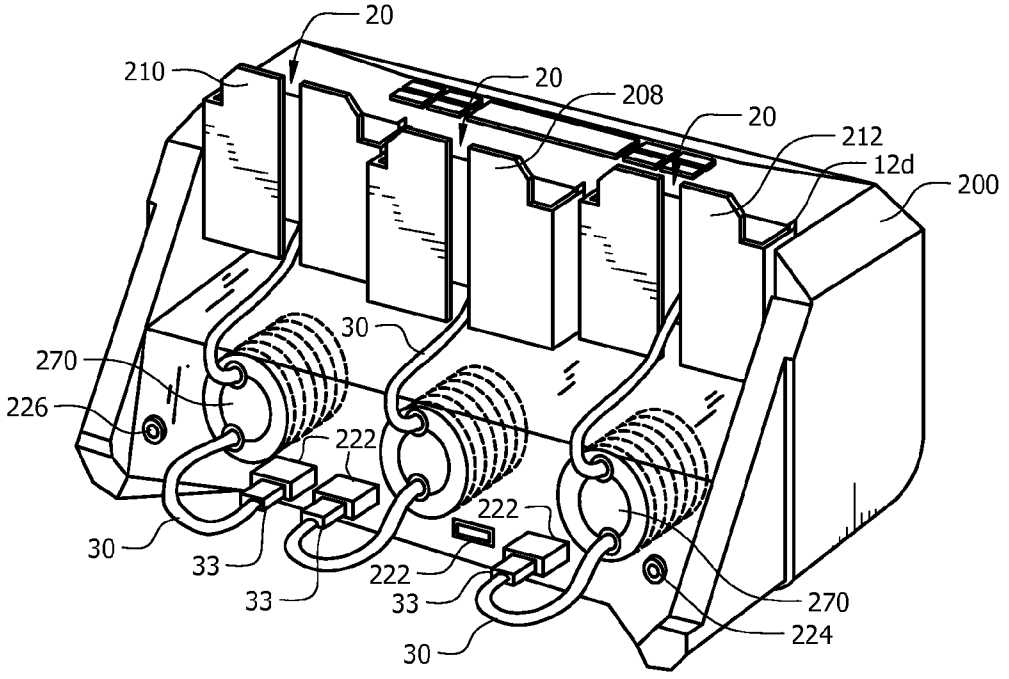
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FIG. 2

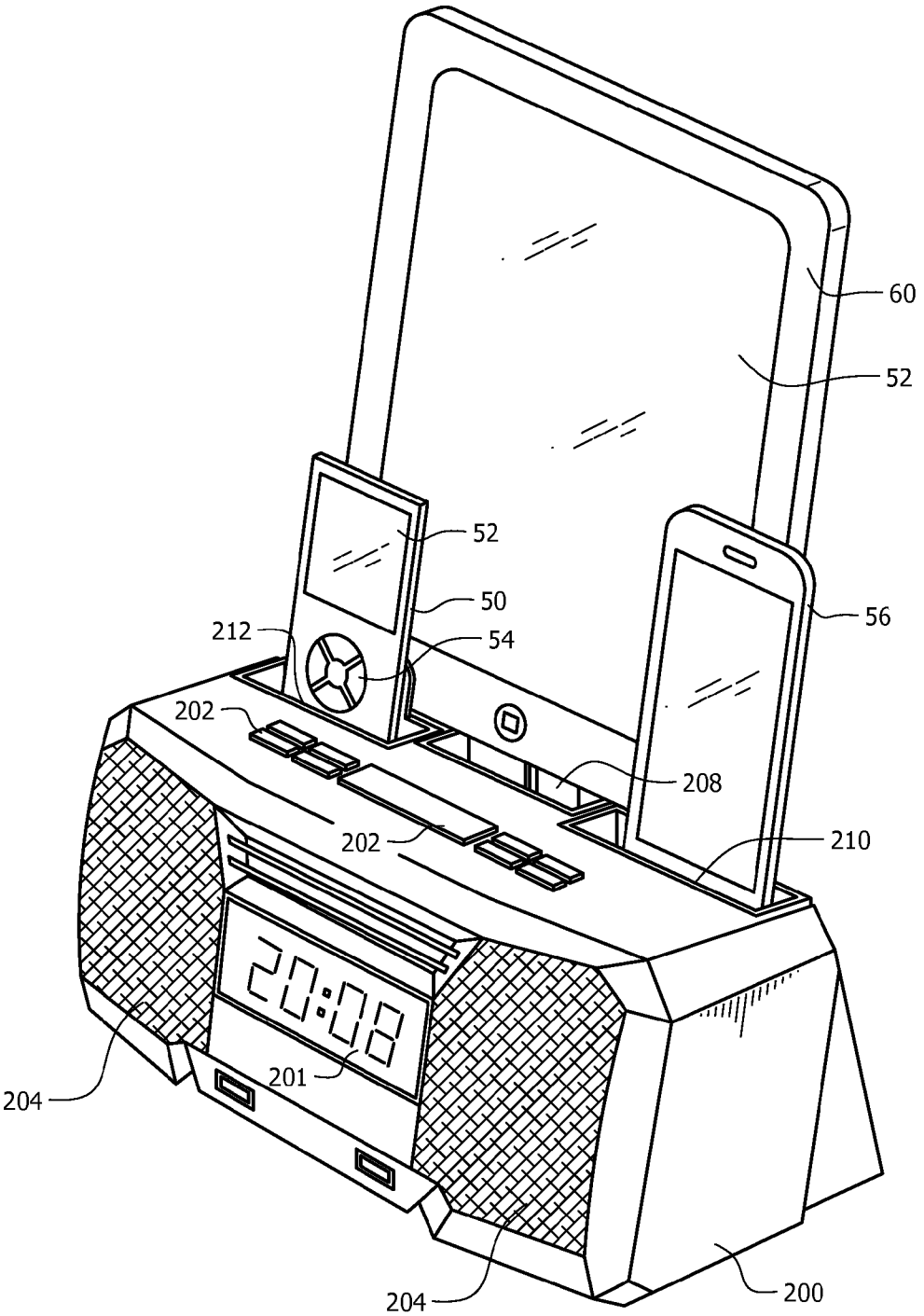

FIG. 3

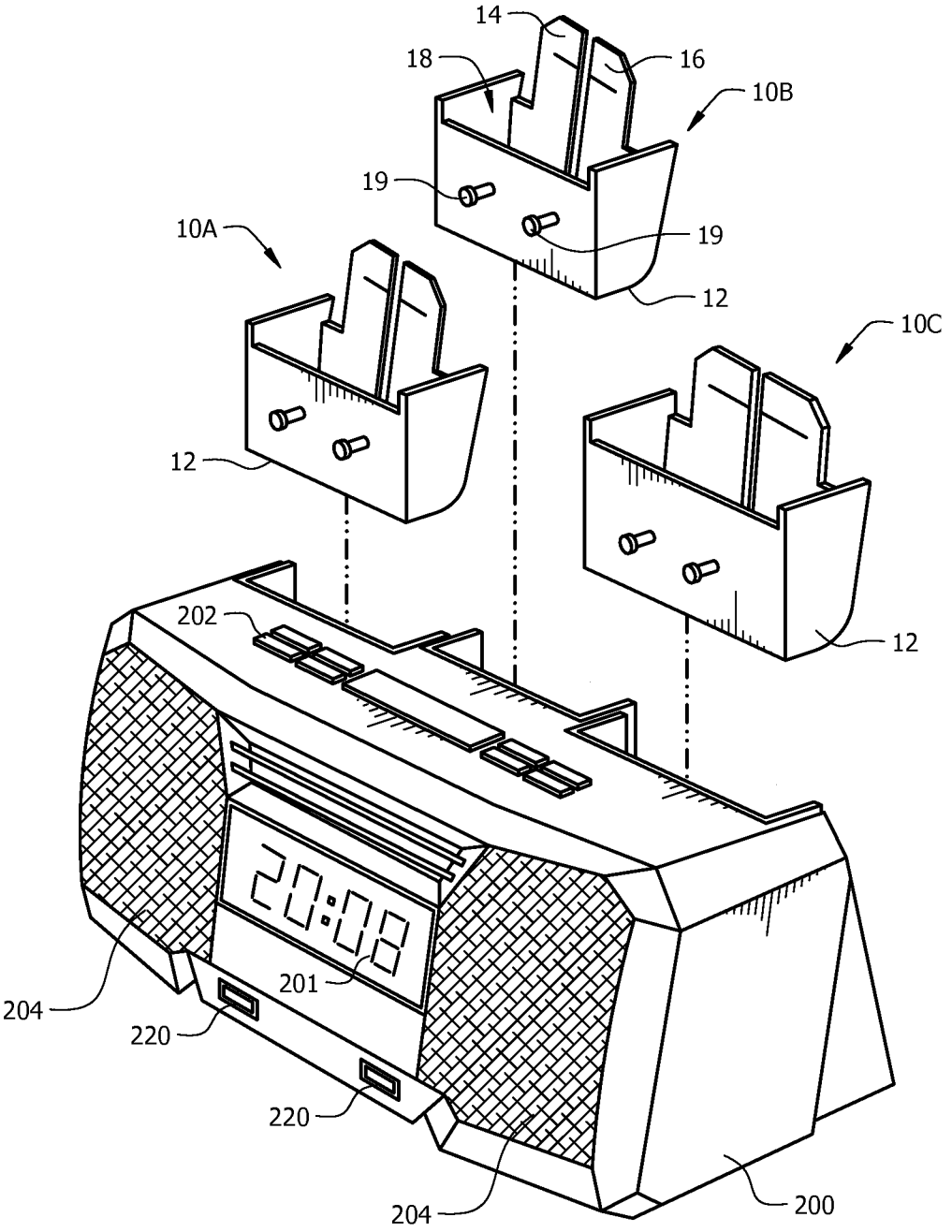
14
18
16
10B
19
19
10A
12
10C
12
12
202
20:08
201
204
220
220
204
200

FIG. 4

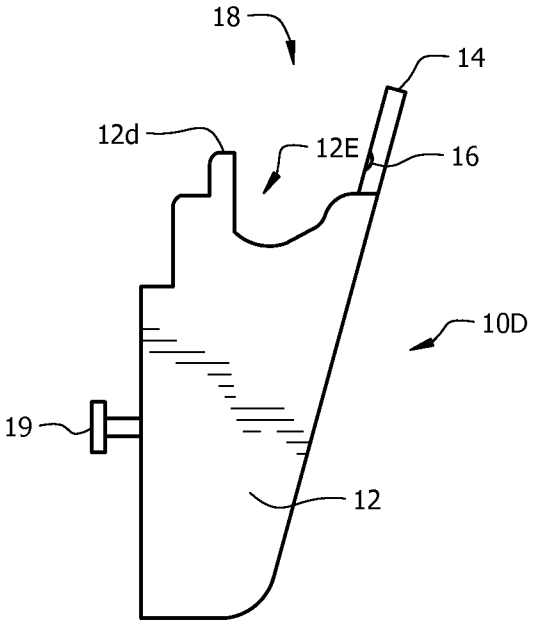

FIG. 5

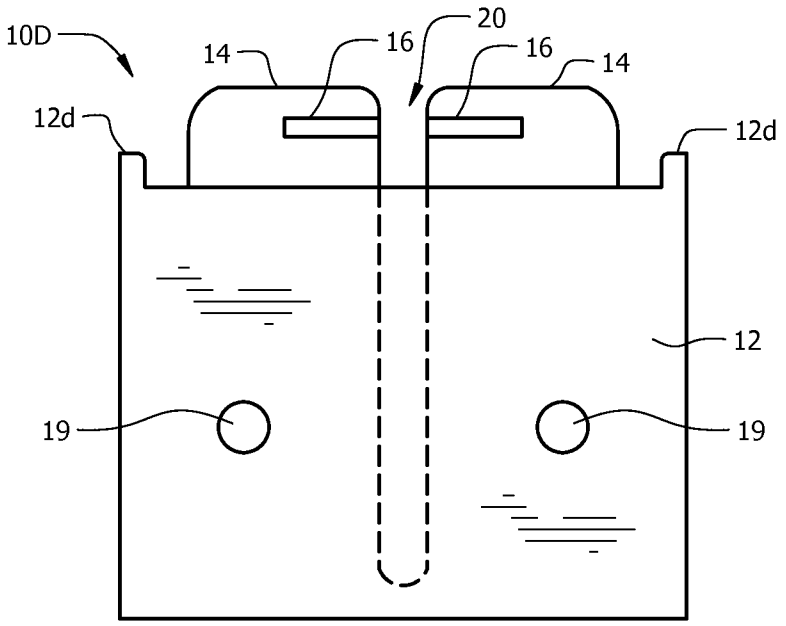

FIG. 6

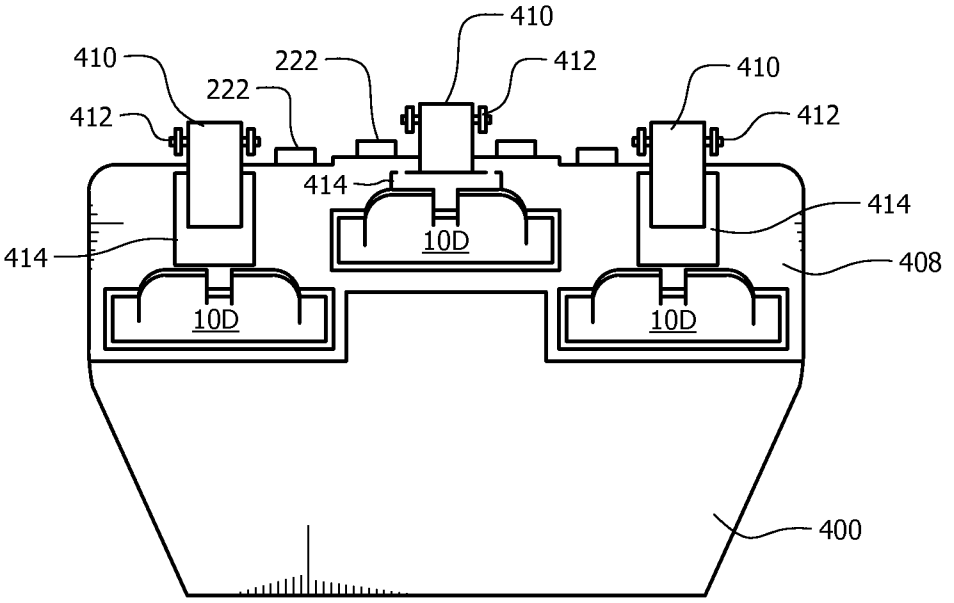
410
410
222
412
222
412
410
412
414
414
10D
414
408
10D
10D
400

FIG. 7

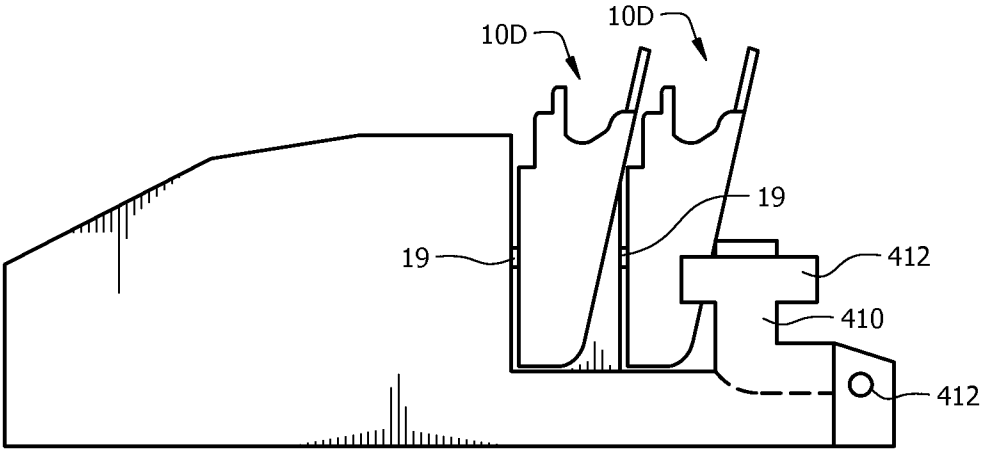
10D
10D
19
19
412
410
412

FIG. 8

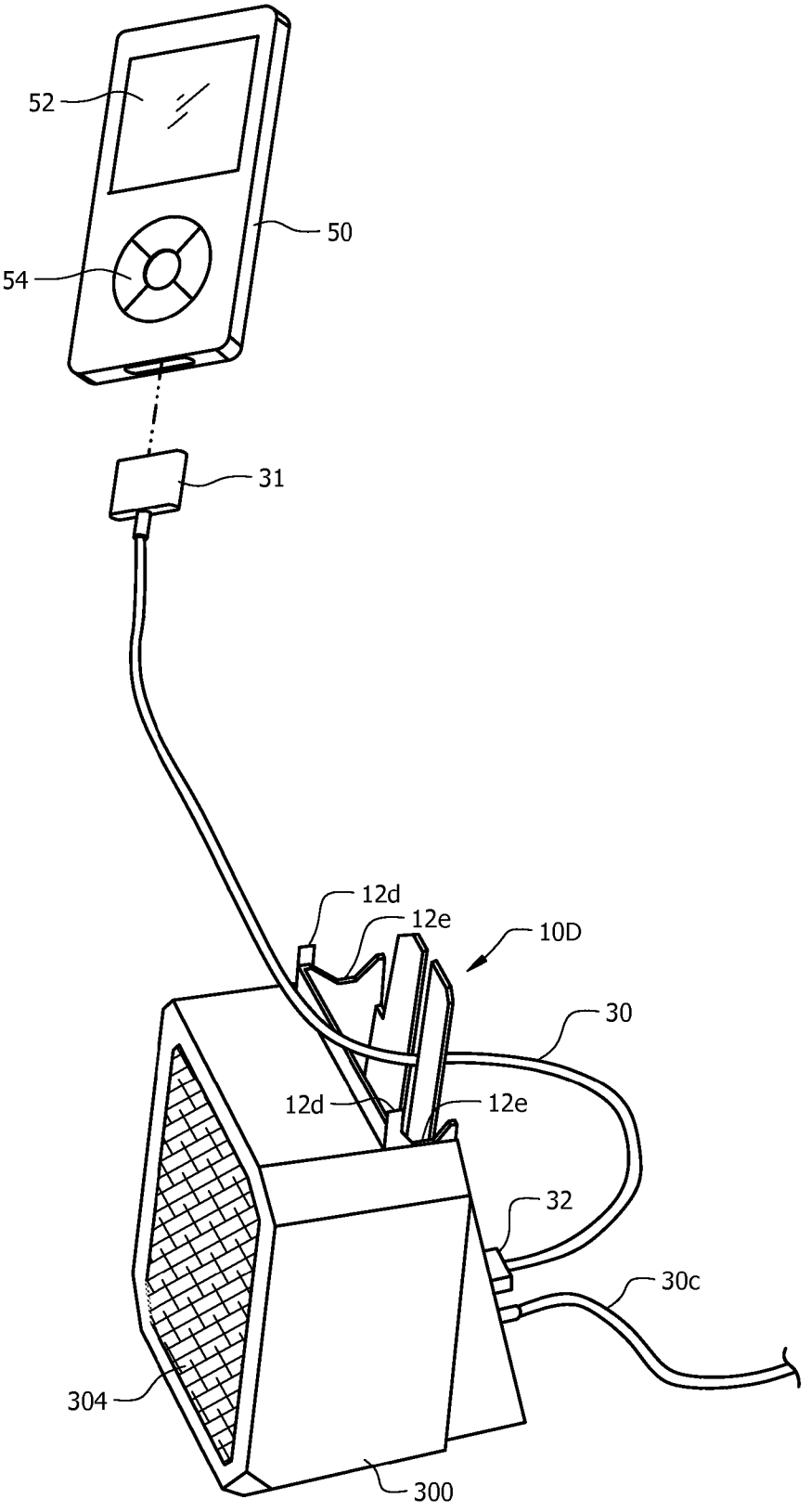

FIG. 9

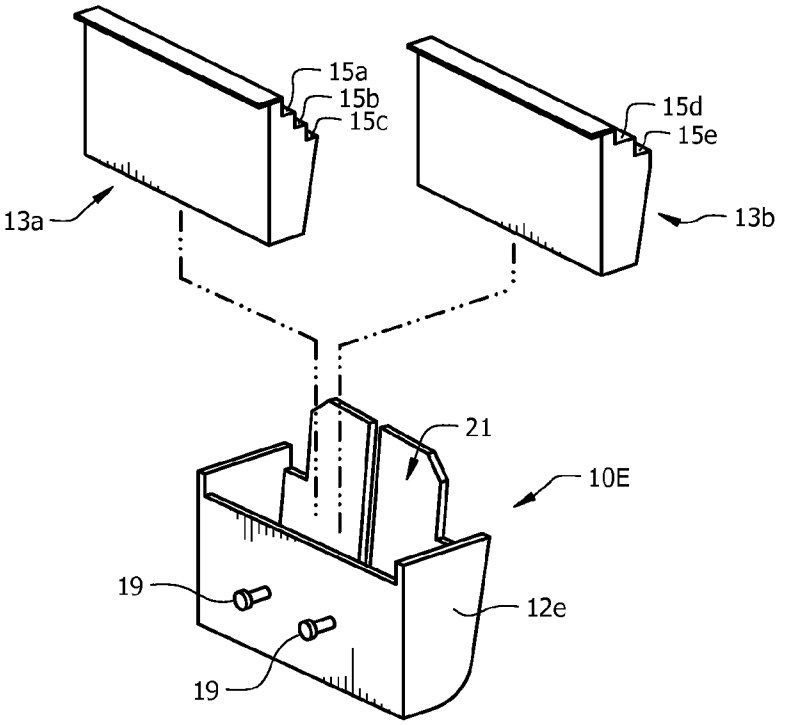
15a
15b
15c
15d
15e
13a
13b
21
10E
19
19
12e

FIG. 10

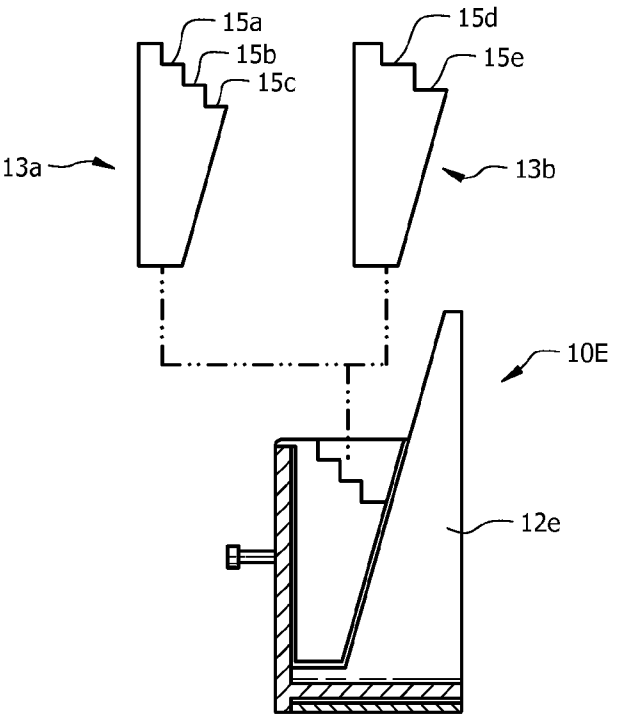
15a
15b
15c
15d
15e
13a
13b
10E
12e

FIG. 11

SYSTEM, METHOD AND APPARATUS FOR HOLDING MULTIPLE DEVICES

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of U.S. patent application Ser. No. 12/699,078, filed Feb. 3, 2010; which in turn is a Continuation-in-Part of U.S. patent application Ser. No. 11/676,850 titled "ADAPTABLE DIGITAL MUSIC PLAYER CRADLE," filed Feb. 20, 2007, now U.S. Pat. No. 7,742,293, the disclosure of both is hereby incorporated by reference. This application is also a continuation-in-part of U.S. patent application Ser. No. 13/373,076, filed Nov. 3, 2011. This application is related to U.S. application Ser. No. 13/345,994 titled, "SYSTEM AND METHOD FOR HOLDING AND POWERING THREE CONSUMER ELECTRONIC DEVICES," which was filed on even date herewith; and inventor Jack Strauser.

FIELD

This invention relates to the field of consumer electronic devices and more particularly to a system for supporting multiple consumer electronic devices while the consumer electronic devices are, for example, in use and/or charging.

BACKGROUND

Many consumer electronic devices are powered by an internal rechargeable battery and, to recharge the battery, the consumer electronic devices are connected to an external source of electrical power while an internal circuit controls charging of the internal rechargeable battery.

One recharging system includes what is often referred to as a "wall wart." A "wall wart" is typically a sealed transformer and/or power conditioning circuit connected to an typical A/C plug (approximately 117 VAC in the USA). Conditioned power from the wall wart is transferred to the consumer electronic device through a cable and a connector. The connector mates with a corresponding connector on the consumer electronic device. For example, many new smart phones have miniature USB connectors. These miniature USB connectors mate with male miniature USB connectors at an end of a power cable, in turn connected to a wall wart that provides conditioned 5 VDC power. This method of charging works well, but causes clutter when users have multiple devices. Additionally, each wall wart that is kept plugged into A/C power drains a small amount of A/C/ power, even when not charging the consumer electronic devices. This results in a waste of energy.

Lately, there has been a movement to standardize on a voltage of 5 VDC. This standard would apply whether through a miniature USB connector or through a proprietary connector as is often used with several cellular phones. Suppliers of consumer electronic devices often provide a cable having a standard USB connector on one end for connecting to a 5 VDC source and a mating connector for connecting to the consumer electronic device on the other end, The user is able to obtain 5 VDC power for the standard USB connector at many sources such as wall warts that have a female standard USB connector, computer systems, airport charging stations, female USB connectors in vehicles, etc. Still, many find themselves using this solution with the included wall wart, leaving the wall wart plugged into A/C power for longer than needed.

There are cradles for holding consumer electronic devices and, optionally, use them while charging. Some of the cradles use the same wall wart provided with the consumer electronic devices. Others have their own power source, usually a wall wart. Since the display of the consumer electronic device is held at an angle instead of facing up or facing down, the display is usable while in these charging cradles. For example, a user is able to watch a movie on some consumer electronic devices while the consumer electronic device is held in a cradle. Some cradles include integrated connectors for directly connecting to the consumer electronic devices. Other cradles provide a cable for connection to the consumer electronic devices.

There are charging stations that have multiple USB female connectors for concurrently charging multiple consumer electronic devices. The charging station typically remains plugged into A/C power and, hence, still wastes energy and creates heat when not in use.

Recently, several manufacturers have created home entertainment systems that have one or more charging stations that connect to the consumer electronic devices, some having cradles to support the consumer electronic devices. Home entertainment systems already use some "parasitic" power to maintain clocks (time of day) and maintain a standby state waiting for a command from a remote control. Therefore, since such devices already use a small amount of "parasitic" power, there is little or no additional power used to make those devices ready to power/charge the consumer electronic devices.

Some such entertainment systems include a docking station for one particular consumer electronic device such as a docking station for one particular manufacturer's digital music player. In some entertainment systems, a consumer electronic device rests in and plugs into a separate, tethered, docking pod. In others entertainment systems, the consumer electronic device has a cradle with or without a connector for the consumer electronic device.

In modern times, many individuals and families own multiple devices that need charging several times per week. For example, on any given day, a single person owning a smart phone, digital music player and a tablet PC will find a need to charge one or more of these consumer electronic devices. There are charging stations that accept multiple devices, having cradles for smaller devices such as smart phones, yet requiring larger consumer electronic devices (e.g. tablet PCs) to rest on a horizontal surface. There are many drawbacks to resting such larger consumer electronic devices horizontally including, but not limited to, increasing the risk of damage from setting heavy objects on the larger consumer electronic device's display, splatter from nearby sources of liquids (e.g., sinks), increased dust adhesion, fluid penetration from a nearby spill, etc.

Some recent consumer products include charging ports and locations for holding one or more consumer electronic devices. There are many amplified speaker systems or clock radio systems that include a cradle with or without an integrated connector for one particular consumer electronic device. These consumer electronic devices generally support exactly one consumer electronic device. There is at least one consumer electronic device manufactured by Hammacher Schlemmer that supports two digital music players of one particular manufacturer, side-by-side, within a single cavity.

There are several problems with existing consumer electronic systems that support one or more consumer electronic devices. Many or all such consumer electronic systems support consumer electronic i-devices from only a single manufacturer. Many or all such consumer electronic systems sup-

port only a small, very limited size range of consumer electronic devices, typically only one or a small subset of all possible consumer electronic devices such as one i-device (e.g. those made by a particular manufacturer that names their products starting with an "i") from only a single manufacturer. Many or all such consumer electronic systems do not support larger consumer electronic devices such as tablet computers. Many or all such consumer electronic systems do not concurrently support smaller consumer electronic devices concurrently while supporting larger consumer electronic devices such as tablet computers. Many or all such consumer electronic systems do not provide proper physical support for larger consumer electronic devices such as tablet computers.

What is needed is a system that will support and charge a mix of consumer electronic devices in a proper orientation.

SUMMARY

In one embodiment, a consumer electronic system is disclosed including an enclosure and a plurality of cradles extending from the enclosure. Each cradle has a cavity and a support wall. Each cavity is sized to partially contain a consumer electronic device selected from a set of consumer electronic devices. The support wall provides support to a surface of the consumer electronic device while the consumer electronic device sits within the cavity. At least one cradle of the cradles is positioned in a staggered location behind at least one other cradle of the cradles such that a second consumer electronic device of the set of consumer electronic devices supported by the at least one cradle rests against the support wall of the at least one cradle and an edge of the second consumer device rests against a back surface of the support walls of the at least one other cradle.

In another embodiment, a method of charging a consumer electronic device is disclosed. The method includes connecting a first end connector of a data/power cable into a first consumer electronic device, the first end connector of the data/power cable designed to physically and electrically connect to the first consumer electronic device. The data/power cable is routed through a cable trough of a first cradle of a plurality cradles. The first cradle is removably attached to a consumer electronic system and the first cradle is staggered behind at least one other cradle of the plurality of cradles, The first consumer electronic device is placed into the first cradle such that a back side of the first consumer electronic device rests against a support wall of the first cradle and a forward edge of the first consumer electronic device is held by at least one back side of a support wall of at least one of the other cradles. A second end connector of the data/power cable is connected to a receptacle of the consumer electronic system, thereby providing power to the first consumer electronic device.

In another embodiment, a consumer electronic system is disclosed including an enclosure and a plurality of cradles extending from a back surface of the enclosure. Each cradle has a cavity and a support wall. Each of the cavities is sized to contain and support at least one consumer electronic device of a plurality of consumer electronic devices. The at least one consumer electronic device rests against the support wall while supported by the cavity. The support wall has a cable trough. At least one cradle of the plurality of cradles is positioned behind at least one other cradle of the plurality of cradles such that a larger consumer device that is too wide to fit within a cavity of the at least one cradle rests against the support wall of the at least one cradle and an edge of the larger consumer device rests against a back surface of the support walls of at least one of the other cradles.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

FIG. **1** illustrates a front perspective view of a consumer electronic system having multiple consumer electronic device cradles.

FIG. **2** illustrates a rear perspective view of the consumer electronic system having multiple consumer electronic device cradles.

FIG. **3** illustrates a front perspective view of the consumer electronic system with multiple consumer electronic devices supported in cradles.

FIG. **4** illustrates a front perspective view of a consumer electronic system having multiple removable consumer electronic device cradles.

FIG. **5** illustrates a side plan view of a consumer electronic device cradle.

FIG. **6** illustrates a front plan view of a consumer electronic device cradle.

FIG. **7** illustrates a top plan view of a consumer electronic system having three cradles and folding cable management.

FIG. **8** illustrates a side plan view of a consumer electronic system having three cradles and folding cable management.

FIG. **9** illustrates a side perspective view of an external speaker for use with a consumer electronic system having a cradle.

FIG. **10** illustrates a front perspective exploded view of cradle a consumer electronic system having a stepped insert.

FIG. **11** illustrates a side exploded view of cradle a consumer electronic system having a stepped insert.

DETAILED DESCRIPTION

Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Throughout the following detailed description, the same reference numerals refer to the same elements in all figures.

Throughout this description, the term, "consumer electronic device" refers to devices such as digital music players (i-devices, MP3 players, etc.), digital media players (e.g., MP4 players, movie players), cellular phones (e.g., smart phones, i-phones), portable Global Positioning Satellite (GPS) devices, tablet computing devices (e.g. i-tablet computers, etc.). Any portable consumer electronic device is anticipated, whether or not the consumer electronic device has an internal rechargeable power source. Some consumer electronic devices have persistent storage for storing audio content (music) or video content (movies) such as a micro-hard disk or flash memory. Under user control, these files are retrieved, uncompressed and converted to audio and/or video. The analog audio signal is often emitted in a 3.5 mm stereo headphone jack for the user to connect headphones or other reproduction devices. Some devices have a specialized data/power connector for connecting to a source of power and/or transferring data (e.g. music) to/from the consumer electronic device. Many consumer electronic devices have graphical displays.

Throughout this description, the term, "consumer electronic system" refers to systems that supports/holds and optionally charges consumer electronic device. Consumer

electronic systems optionally perform other functions such as amplifying audio and presenting the audio through speakers, displaying the time, clock radio functions, etc.

Throughout this description, the term, "USB port" refers to an industry standard interface port, commonly known as "Universal Serial Bus." This particular port has become ubiquitous for many applications and uses, many of which do not utilize the integrated high-speed serial interface, and, instead, use only the standard power connection for powering of devices connected to the USB ports (e.g., digital music players, smart phones . . .). Although the specific term, "USB" is used throughout this description and drawings, the invention and claims are not limited to any particular port or type of port, nor limited to using such port for power only, power and communications or communications only.

Referring to FIGS. **1** and **2**, front (FIG. **1**) and rear (FIG. **2**) perspective views of a consumer electronic system **200** having multiple consumer electronic device cradles **208/210/212** are shown. In the examples shown, the consumer electronic system **200** includes an enclosure in the form of a clock radio **200** having a display **201**, speakers **204**, control buttons/switches **202**, and electrical components/circuitry (internal—not visible). The clock radio **200** is one example of such a consumer electronic system **200** and any other consumer electronic system **200** is anticipated. Such anticipated consumer electronic systems include, but are not limited to, amplified speakers, home stereo systems, consumer electronic device charging stations, personal computers, etc. The consumer electronic system **200** has an enclosure, typically made from a hard material such as plastic or metal.

Several industry standard receptacles **220/222**, herein referred to as USB ports **220/222**, though not limited to USB ports **220/222**, are provided for connection to devices that require power from such ports. By providing such standardized ports **220/222**, it is anticipated that a wide variety of consumer electronic devices is supported, using cables that already exist for connection to such devices. Extra front or side located industry standard receptacles **220** are provided in anticipation of additional consumer electronic devices that require power from such ports. For example, the additional industry standard receptacles **220** are used if a user has more consumer electronic devices than the number of provided cradles **208/210/212**. Although two front-located USB ports **220** are shown, any number and location of such extra USB ports **220** is anticipated.

To hold consumer electronic devices, perhaps while charging or while in use, several cradles **208/210/212** are provided, protruding from a surface of the consumer electronic system **200**. In some embodiments, the cradles **208/210/212** are fixedly attached or integrated into the consumer electronic system **200**. In such embodiments, the resulting system is restricted to supporting (holding) devices that fit within the fixed cradles **208/210/212**. Being that there are a large number of sizes and shapes of consumer electronic devices, each type of cradle **208/210/212** is sized and shaped to support a subset of such consumer electronic devices. For example, in one version of cradles **208/210/212**, i-devices fit snuggly within the cradles **208/210/212** while in another version of cradles **208/210/212**, devices from another manufacturer snugly fit with the cradles **208/210/212**.

In other embodiments, the cradles **208/210/212** are formed/manufactured as distinct components and removably attach to the consumer electronic system. In these embodiments, there are two or more types of cradles **208/210/212** that are interchangeable. Each type of cradle **208/210/212** supports/holds different sizes and shapes of consumer electronic devices. This versatility increases the size of the subset of consumer electronic devices supported up to and including the full range of known consumer electronic devices. Furthermore, it is anticipated that new cradles **208/210/212** are deployed to address unique sizes and shapes of new consumer electronic devices. This prevents the user from needing to purchase a new consumer electronic system **200**. When a new size or shape of cradle is needed, only the cradles **208/210/212** are replaced, reducing cost and reducing outdated products that prematurely get discarded.

The construction and attachment of the cradles **208/210/212** will be described later. In the example shown, the cradles **208/210/212** include optional nubs **12***d* for holding consumer electronic devices that are either rotated horizontally or are too wide to fit within the cradles **208/210/212**.

Several USB ports **222** are provided in the vicinity of the cradles **208/210/212** for providing power and/or data connections to the consumer electronic devices that are in/on the cradles **208/210/212**. For example, the standard USB plug **33** of power and/or data cables **30** is plugged into the USB ports **222**, A connector (not visible) at the other end of the power and/or data cables **30** is then connected to the consumer electronic devices. The cable **30** is shown wound in a compartment for cable management, with the cable routed through the optional cable trough **20** for connection to the consumer electronic device.

In some embodiments, an audio input jack **224** is provided for audio connection to one or more of the consumer electronic devices **50/56/60** supported by the cradles **208/210/212**. One end of an audio cable is connected to the consumer electronic devices **50/56/60** supported by one of the cradles **208/210/212**, and the other end of the audio cable is connected to the audio input jack **224**. The audio input jack **224** transmits analog (or digital) audio data from the consumer electronic device **50/56/60** to the consumer electronic system **200** for reproduction at the speakers **204**.

Although any power source is anticipated for the consumer electronic system **200**, including internal batteries, in the example shown a power input jack **226** is provided for accepting AC or DC power from a standard power source or from a wall-wart power supply, etc.

In some embodiments, an optional cable management features is included. An exemplary cable management system is shown in FIG. **2**. In the cable management system the excess cables are wrapped into loops, or wrapped around spools, then pushed into cavities in the base of the consumer electronic system **200** and, optionally protected with covers **270**.

Referring to FIG. **3**, a front perspective view of the consumer electronic system **200** with multiple consumer electronic devices **50/56/60** supported in cradles **208/210/212** is shown. The staggered locations of the cradles **208/210/212** is preferred because some consumer electronic devices **60** are wide (e.g. a tablet computer **60**). Staggering enables the larger consumer electronic devices **60** to be held in the rear cradle **208** while not encroaching on the forward cradles **210/212**, thereby allowing concurrent use of the forward cradles **210/212** for smaller consumer electronic devices (e.g. a digital music player **50** and a smart phone **56**). A further advantage of said staggering is visible in FIG. **3** in which a lower front edge of the larger consumer electronic device **60** in the rear cradle **208** rests against the rear surface of the support walls **14** of the forward cradles **210/212** (see FIGS. **5** and **6**), preventing the consumer electronic device **60** from sliding forward.

The consumer electronic devices **50/56/60** typically have displays **52** (e.g. LCDs) and either keypads/buttons **54** for controls or touch screen interfaces presented on the displays **52**. The consumer electronic devices **50/56/60** shown are examples of such devices and the exemplary devices shown

are not meant to be exclusive. There are many sizes, shapes and configurations of consumer electronic devices **50**/**56**/**60**.

Referring to FIG. **4**, a front perspective view of a consumer electronic system **200** having multiple removable consumer electronic device cradles **10**A/**10**B/**10**C is shown. As discussed previously, there are many advantages of removable cradles **10**A/**10**B/**10**C. It is fully anticipated that any number of fixed cradles **208**/**210**/**212** and/or removable cradles **10**A/**10**B/**10**C be included with a particular consumer electronic system **200** in any combination. In this example, each of the exemplary removable cradles **10**A/**10**B/**10**C has a base **12**, a cavity **18** for containing an end of the consumer electronic device and a support wall **14** for supporting the consumer electronic device, preferably on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold clip-on micro-sized consumer electronic devices (not shown). The height of the support wall **14** is such that the consumer electronic device rests against the support wall **14** without falling over. Therefore, it is anticipated that, in some embodiments, the support wall **14** is taller and/or shorter than shown in FIG. **4**. A taller support wall **14** for the rear staggered cradle **10**B is anticipated for supporting larger consumer electronic devices **50**/**56**/**60** such as tablet computers **60**. In some embodiments, one or all of the support walls **14** are extendable (not shown) and/or a separate extender (not shown) is provided to extend the height of one or all support walls **14**.

For removably attaching the cradles **10**A/**10**B/**10**C to the consumer electronic system **200**, a mounting system is provided such as mounting posts **19** that depend from the front surface of the base **12** of the cradles **10**A/**10**B/**10**C. These mounting posts **19** slide into key holes (not shown) on a surface of the consumer electronic system **200** (e.g., a back surface of the consumer electronic system).

Although all cradles **10**A/**10**B/**10**C are shown having one particular connection system consisting of mounting posts **19** that mate with corresponding key holes (not shown) on a surface of the consumer electronic system **200**, any known removable attachment system is anticipated. Such anticipate cradles **10**A/**10**B/**10**C include, but are not limited to, mounting posts **19** and key holes, mounting slots that slide into mating mounting slots, hook-and-loop material, partially adhesive materials, etc. Several mounting systems are shown in the priority documents that are included by reference.

For support of multiple sizes of consumer electronic devices **50**/**56**/**60**, there are several optional features for the cradles **10**A/**10**B/**10**C. One optional feature snuggly supports several different sizes of a subset of all consumer electronic devices **50**/**56**/**60** without requiring inserts or removable sections. With such optional feature, the cradles **10**A/**10**B/**10**C are supplied with one or more inner sub-cavities formed by a number of ledges as disclosed in U.S. patent application Ser. No. 12/699,078. This patent application was previously incorporated by reference. Using these inner sub-cavities, the smaller sized consumer electronic device **50**/**56**/**60** will fit snuggly in the deepest inner sub-cavity; the next larger consumer electronic device **50**/**56**/**60** will fit snuggly in the next higher inner sub-cavity; etc.

Although not required, the cradles **10**A/**10**B/**10**C optionally have horizontal/vertical support features as shown in detail in the examples of FIGS. **5** and **6**. Some embodiments of the cradles **10**A/**10**B/**10**C include the optional horizontal/vertical support features of the cradles **10**D shown in FIGS. **5** and **6**. These features include one or both of a beveled side edge **12***e* and a nub **12***d*. The beveled side edge **12***e* and/or nub **12***d* provide support for a consumer electronic device **50**/**56**/**60** that either does not fit within the cavity **18** or, because of user preference, is rotated either 90 degrees or −90 degrees from horizontal. For some consumer electronic devices **50**/**56**/**60**, the longer edge of the consumer electronic device **50**/**56**/**60** will not fit within the cavity **18**. In such a configuration, one of the longer side edges of the consumer electronic device **50**/**56**/**60** rests on and is supported by one or both of the beveled side edge **12***e* and the nub **12***d*.

Referring to FIGS. **5** and **6**, a side plan view (FIG. **5**) and front plan view (FIG. **6**) of a consumer electronic device cradle **10**D for horizontal/vertical support is shown. The consumer electronic device cradle **10**D has a base **12**, a cavity **18** for containing an end of the consumer electronic device and a support wall **14** for supporting the consumer electronic device, preferably on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold clip-on micro-sized consumer electronic devices (not shown). The same style cradle **10**D is also anticipated as a non-removable cradle as described above. The height of the support wall **14** is such that the consumer electronic device rests against the support wall **14**, preferably without falling over. Therefore, it is anticipated that, in some embodiments, the support wall **14** is taller than shown in FIGS. **5** and **6**, especially the support wall **14** of the rear staggered cradle **10**D for supporting larger consumer electronic devices **50**/**56**/**60** such as tablet computers **60**. In some embodiments, one or all of the support walls **14** are extendable (not shown) and/or a separate extender (not shown) is provided to extend the height of one or all support walls **14**.

For removably attaching the cradle **10**D to the consumer electronic system **200**, a mounting system is provided such as mounting posts **19** that extend from the front surface of the base **12** of the cradle **10**D. These mounting posts **19** slide into key holes (not shown) on a surface of the consumer electronic system **200** (e.g., a back surface of the consumer electronic system). As discussed, many removable attachment mechanisms are anticipated.

Although the cradle **10**D is shown having one particular connection system consisting of mounting posts **19** that mate with corresponding key holes (not shown) on a surface of the consumer electronic system **200**, any known removable attachment system is anticipated including, but not limited to, mounting posts **19** and key holes, mounting slots that slide into mating mounting slots, hook-and-loop material, partially adhesive materials, etc. Several mounting systems are shown in the priority documents that are included by reference.

The cradles **10**A/**10**B/**10**C/**10**D/**208**/**210**/**212** optionally have a cable trough **20** for routing a data and/or power cable from the consumer electronic device **50**/**56**/**60** to the USB ports **220**/**222**.

Referring to FIGS. **7** and **8**, a top plan view of a consumer electronic system **400** having three cradles **10**D and folding cable management **410**/**412**/**414** and a side plan view of a consumer electronic system **400** having three cradles **10**D and folding cable management **410**/**412**/**414** is shown. As above, the consumer electronic system **400** includes an enclosure and internal electronics in the form of is any type of consumer electronic system such as a clock radio, charging station, amplified speakers, etc. In this example, there are three cradles **10**D in a staggered configuration, though any number of cradles **10**D is anticipated. The cradles **10**D are either removable or fixed (e.g. part of the consumer electronic system **400** or permanently affixed to the consumer electronic system **400**). In the examples shown, the cradles **10**D are removable and the mounting peg **19** is visible. It is anticipated that when the cradles **10**D are in place, the mounting arrangement is not visible and the consumer electronic system **400** appears as if the cradles **10**D are permanently attached.

Again, any cradle **10**D attachment mechanism and any type/format of cradle **10**D are anticipated.

Many consumer electronic devices **50**/**56**/**60** are supplied with cables that, at one end has a connectors **31** (see FIG. **9**) that mate with the consumer electronic device **50**/**56**/**60** and at the other end have a standard size USB plug. Often these cables are long, for example between three feet and six feet long. Such lengths create a cable management issue, especially when three or more consumer electronic devices **50**/**56**/**60** are supported. To reduce cable clutter, several optional cable management features are shown. The first cable management system is shown in FIG. **2**. In this system, the excess cables are wrapped into loops or wrapped around spools then pushed into cavities in the base of the consumer electronic system **400** and, optionally covered with covers **270**.

In a second cable management system, shown in FIGS. **7** and **8**, the excess cable is wrapped around spools **410**/**414**. To enable winding of the spools **410**/**414**, in some embodiments, the spools **410**/**414** are hingedly coupled to the consumer electronic system **400**, for example to a base **408** of the consumer electronic system **400**. In the example shown in FIGS. **7** and **8**, the spools **410**/**414** are hingedly coupled to the base **408** by pins **412**. Any hinged and/or bendable system is anticipated. For example, in some embodiments, the spool arm **410** is flexible enough as to bend outwardly for wrapping the excess cable, and then bend back against the cradles **10**D after winding.

In the example shown, to compensate for the staggered center cradle **10**D, the spool cap **414** behind the center cradle **10**D is orientated side-ways. This orientation is in contrast to the spool caps **414** behind the forward mounted cradles **10**D, which are oriented in-line with the forward cradles **10**D.

Referring to FIG. **9**, a side perspective view of an external speaker **300** for use with a consumer electronic system **200** having a cradle **10**D is shown. This external speaker **300** works with another consumer electronic system **200**/**400** and provides both a detached speaker **304** as well as an additional cradles **10**D for supporting and/or charging an additional consumer electronic device **50**/**56**/**60**. It is anticipated that the external speaker **300** has either a fixed cradle **10**D or a removably affixed cradle **10**D as described above. It is anticipated that any style and/or size of cradle **10**D be used with the external speaker **300**, including the stepped version for supporting a variety of sizes of consumer electronic devices **50**/**56**/**60**.

A consumer electronic device **50** having a display **52** and controls **54** is shown in FIG. **9**. Also shown is a cable **30** that has a device plug **31** that interfaces with the device and a standard USB plug **32** that interfaces with a USB port on the external speaker **300**. The cable **30** is routed through the cable trough (slot) **20** when the consumer electronic device **50** is positioned within the cradle **10**D. Optionally, the consumer electronic device is rotated 90 degrees or −90 degrees and the cable **30** is not routed through the cable trough **20**.

The speaker system **300** is interfaced to the consumer electronic system **200**/**400** by another USB cable **30***c* and/or a separate audio cable (not shown) as needed.

Referring to FIGS. **10** and **11**, a front perspective exploded view and a side exploded view of cradle a consumer electronic system having a stepped insert are shown. Although the stepped, multi-ledge design provides for snug support of several sizes of consumer electronic devices, there are many sizes and shapes of consumer electronic devices. Some are thinner than others, some are thicker than others, some have rounded edges, some have sharp edges, and some are wide while some are narrow. Due to the number of possible sizes, it is very difficult to provide one cradle **208**/**210**/**212**/**10**A/**10**B/**10**C/**10**D that will snuggly hold all possible sizes and shapes of consumer electronic devices. To address this limitation, the cradle **10**E has a blank cavity **21** for accepting inserts **13**A/**13**B. Although two inserts **13**A/**13**B are shown, any number and size/shape of inserts **13**A/**13**B are anticipated. In the examples shown, the first insert **13**A has three steps **15**A/**15**B/**15**C and snuggly supports three sizes of consumer electronic devices while the second insert **13**B has two steps **15**D/**15**E and snuggly supports two sizes of consumer electronic devices. Any number of steps **15**A/**15**B/**15**C/**15**D/**15**E is anticipated. In the examples shown, the steps **15**A/**15**B/**15**C/**15**D/**15**E provide for various thicknesses of consumer electronic devices. In some inserts **13**A/**13**B, also have side steps (not shown) to snuggly fit different widths of consumer electronic devices.

Equivalent elements can be substituted for the ones set forth above such that they perform in substantially the same manner in substantially the same way for achieving substantially the same result.

It is believed that the system and method as described and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely exemplary and explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes.

What is claimed is:

1. A consumer electronic system comprising:

an enclosure; and

a plurality of cradles extending from the enclosure, each cradle having a cavity and a support wall, each cavity sized to partially contain a consumer electronic device selected from a set of consumer electronic devices, the support wall providing support to a surface of the consumer electronic device;

at least one cradle of the cradles positioned in a staggered location behind at least one other cradle of the cradles such that a second consumer electronic device of the set of consumer electronic devices is supported by the at least one cradle resting against the support wall of the at least one cradle and an edge of the second consumer device rests against a back surface of the support walls of the at least one other cradle.

2. The consumer electronic system of claim **1**, wherein the first consumer electronic device is selected from the group consisting of a music player, and a cellular phone and the second consumer electronic device is a table computer.

3. The consumer electronic system of claim **1**, wherein at least one of the cradles is removably attached to the enclosure.

4. The consumer electronic system of claim **1**, wherein the support wall of at least one of the cradles includes a cable trough for routing a cable between the consumer electronic system and a consumer electronic device held by the cradles.

5. The consumer electronic system of claim **1**, wherein the cavity includes at least two steps such that the cavity and the steps snuggly support at least two sizes and/or shapes of consumer electronic devices selected from the set of consumer electronic devices.

6. The consumer electronic system of claim **1**, wherein the cradle includes nubs, the nubs preventing the consumer electronic device from slipping when the consumer electronic device is wider than the cavity.

7. The consumer electronic system of claim **1**, wherein the cradle includes beveled side edges, the beveled side edges

holding the consumer electronic device when the consumer electronic device is wider than the cavity.

8. The consumer electronic system of claim **1**, wherein the cavity removably accepts an insert from a set of inserts and each insert includes at least one step; whereas the cavity, the inserts, and the steps snuggly support at least two sizes and/or shapes of consumer electronic devices selected from the set of consumer electronic devices.

9. The consumer electronic system of claim **1**, wherein the consumer electronic system of claim **1** further includes means for managing cables.

10. The consumer electronic system of claim **1**, wherein the consumer electronic system is a clock radio having controls, at least one speaker, and a display.

11. The consumer electronic system of claim **1**, wherein the consumer electronic system includes a plurality of industry standard ports, each of the industry standard ports providing power to consumer electronic devices that are held by the cradles.

12. A method of charging a consumer electronic device, the method comprising:

connecting a first end connector of a data/power cable into a first consumer electronic device, the first end connector of the data/power cable designed to physically and electrically connect to the first consumer electronic device;

routing the data/power cable through a cable trough of a first cradle of a plurality cradles, the first cradle removably attached to a consumer electronic system, the first cradle staggered behind at least one other cradle of the plurality of cradles;

placing the first consumer electronic devices into the first cradle, a back side of the first consumer electronic device resting against a support wall of the first cradle and a forward edge of the first consumer electronic device held by at least one back side of a support wall of at least one of the other cradles; and

plugging a second end connector of the data/power cable into a receptacle of the consumer electronic system, thereby providing power to the first consumer electronic device.

13. The method of claim **12**, further comprising:

connecting a first end connector of a second data/power cable to a second consumer electronic device, the first end connector of the second data/power cable designed to physically and electrically connect to the second consumer electronic device;

routing the second data/power cable through a cable trough of the second cradle of the cradles;

placing the second consumer electronic devices into the second cradle, a back side of the second consumer electronic device resting against a support wall of the second cradle and the second consumer electronic device held within a cavity of the second cradle; and

plugging a second end connector of the second data/power cable into a second receptacle of the consumer electronic system, thereby providing power to the second consumer electronic device.

14. The method of claim **12**, further comprising:

removing the first cradle from the consumer electronic system;

attaching a different cradle in place of the first cradle on the consumer electronic system;

connecting a first end connector of a third data/power cable to a third consumer electronic device, the first end connector of the third data/power cable designed to physically and electrically connect to the third consumer electronic device;

routing the third data/power cable through a cable trough of the different cradle;

placing the third consumer electronic device into the different cradle, a back side of the third consumer electronic device resting against a support wall of the different cradle and the third consumer electronic device held within a cavity of the different cradle; and

plugging a second end connector of the third data/power cable into the first receptacle of the consumer electronic system, thereby providing power to the third consumer electronic device.

15. The method of claim **12**, further comprising the steps of:

connecting a first end connector of an audio cable to an audio output connector of the first consumer electronic device;

connecting a second end connector of the audio cable to an audio input jack of the consumer electronic system.

16. A consumer electronic system comprising:

an enclosure; and

a plurality of cradles extending from a back surface of the enclosure, each cradle having a cavity and a support wall, each of the cavities sized to contain and support at least one consumer electronic device of a plurality of consumer electronic devices, the at least one consumer electronic device resting against the support wall while supported by the cavity, the support wall having a cable trough;

at least one cradle of the plurality of cradles positioned behind at least one other cradle of the plurality of cradles such that a larger consumer device that is too wide to fit within a cavity of the at least one cradle rests against the support wall of the at least one cradle and an edge of the larger consumer device rests against a back surface of the support walls of at least one of the other cradles.

17. The consumer electronic system of claim **16**, wherein at least one of the cradles is removably attached to the enclosure.

18. The consumer electronic system of claim **16**, wherein the cavities includes at least two steps such that the cavity and the steps snuggly support at least two sizes and/or shapes of consumer electronic devices selected from the set of consumer electronic devices.

19. The consumer electronic system of claim **16**, wherein the cavity removably accepts an insert from a set of inserts and each insert includes at least one step; whereas the cavity, the inserts, and the steps snuggly support at least two sizes and/or shapes of consumer electronic devices selected from the set of consumer electronic devices.

20. The consumer electronic system of claim **16**, wherein the consumer electronic system further includes means for managing cables.

* * * * *

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(12) **United States Patent**
Strauser

(10) **Patent No.: US 8,675,356 B2**
(45) **Date of Patent: *Mar. 18, 2014**

(54) **SYSTEM AND, METHOD FOR HOLDING AND POWERING THREE CONSUMER ELECTRONIC DEVICES**

(76) Inventor: **Jack Strauser**, Pinellas Park, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 194 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/345,994**

(22) Filed: **Jan. 9, 2012**

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(63) Continuation-in-part of application No. 13/373,076, filed on Nov. 3, 2011, and a continuation-in-part of application No. 12/699,078, filed on Feb. 3, 2010, now Pat. No. 8,116,077, which is a continuation-in-part of application No. 11/676,850, filed on Feb. 20, 2007, now Pat. No. 7,742,293.

(51) **Int. Cl.**

H05K 5/00	(2006.01)
H05K 7/00	(2006.01)
G06F 1/16	(2006.01)

(52) **U.S. Cl.**

USPC **361/679.41**; 361/679.4; 361/679.44

(58) **Field of Classification Search**

USPC 361/679.4, 679.41, 679.44

See application file for complete search history.

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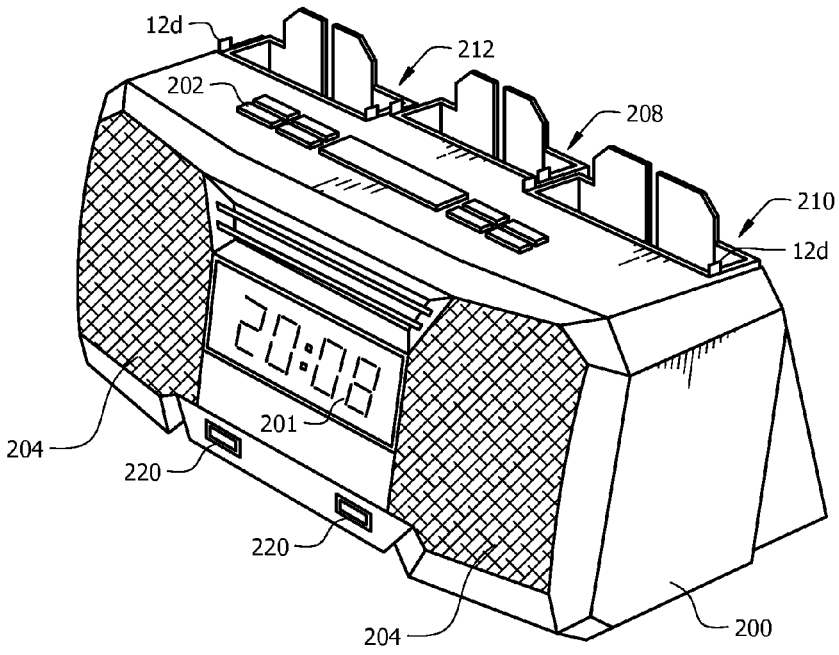
Primary Examiner — Anthony Haughton

(74) *Attorney, Agent, or Firm* — Larson & Larson, P.A.; Frank Liebenow; Justin P. Miller

(57) **ABSTRACT**

A consumer electronic system for holding and providing power to as many as three consumer electronic devices has three cradles in a staggered configuration. One of the cradles is positioned behind and between the remaining two cradles. Thereby the cradle positioned behind the other two cradles is capable of supporting a larger consumer electronic device without blocking the front two cradles. The support walls of the front two cradles provide a surface that supports the larger consumer electronic device.

20 Claims, 7 Drawing Sheets



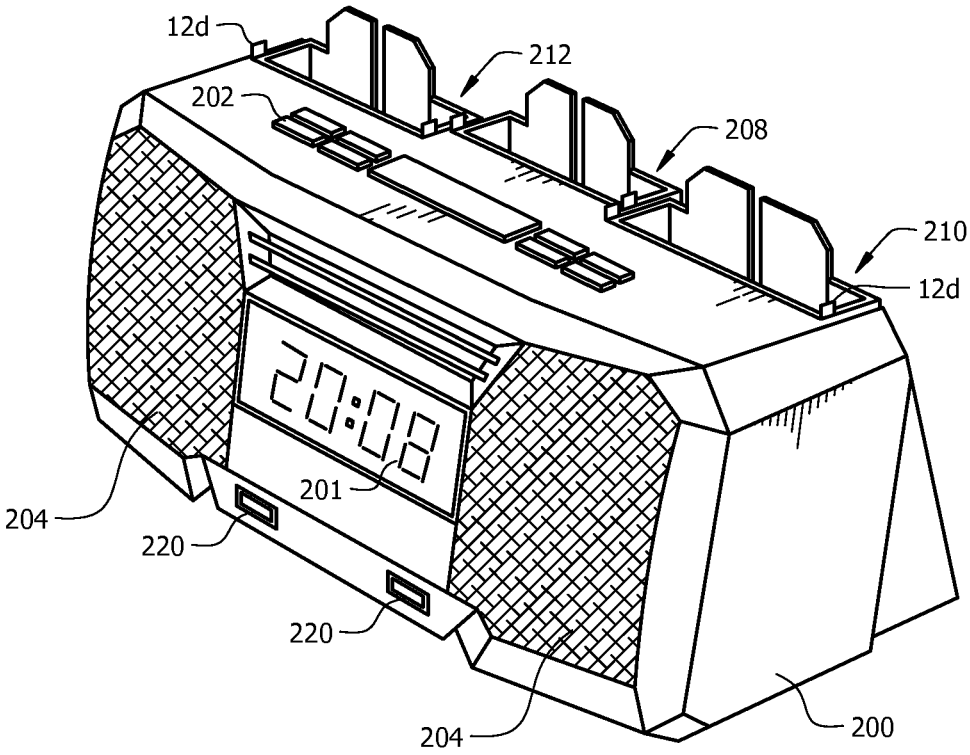

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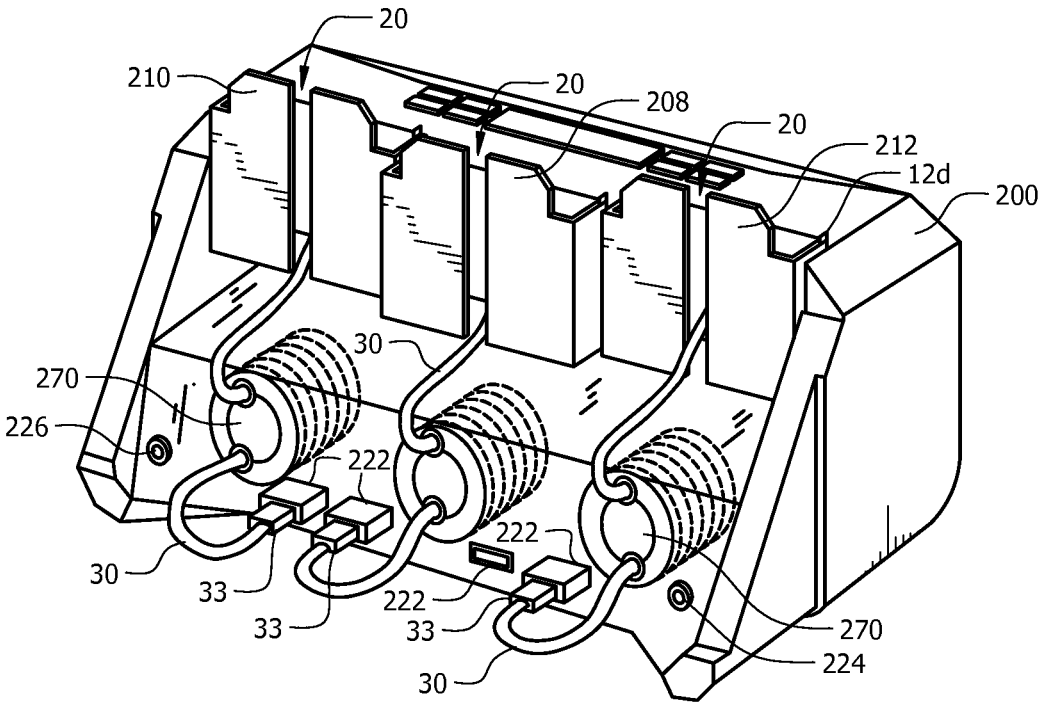
FIG. 1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224
30

FIG. 2

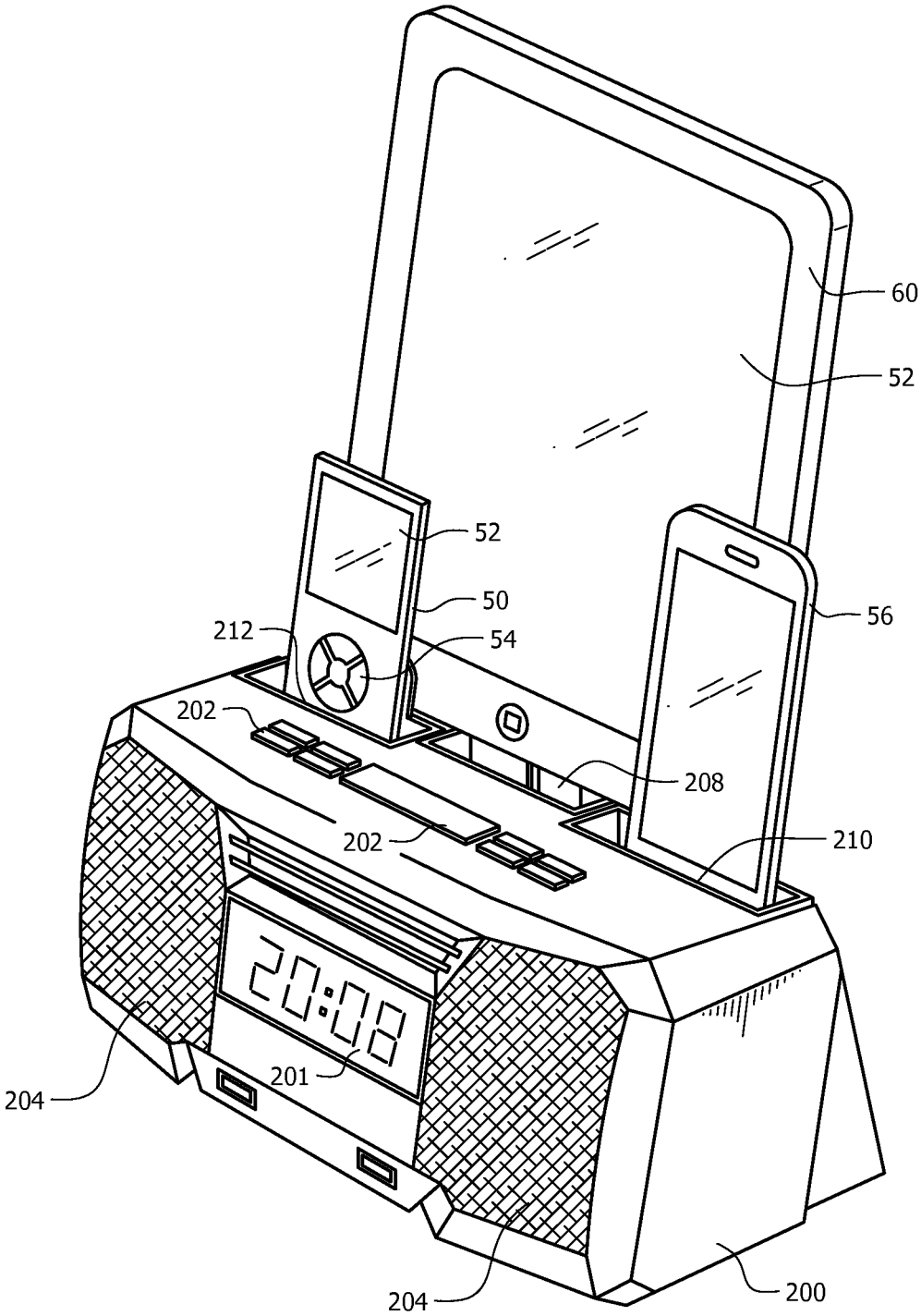
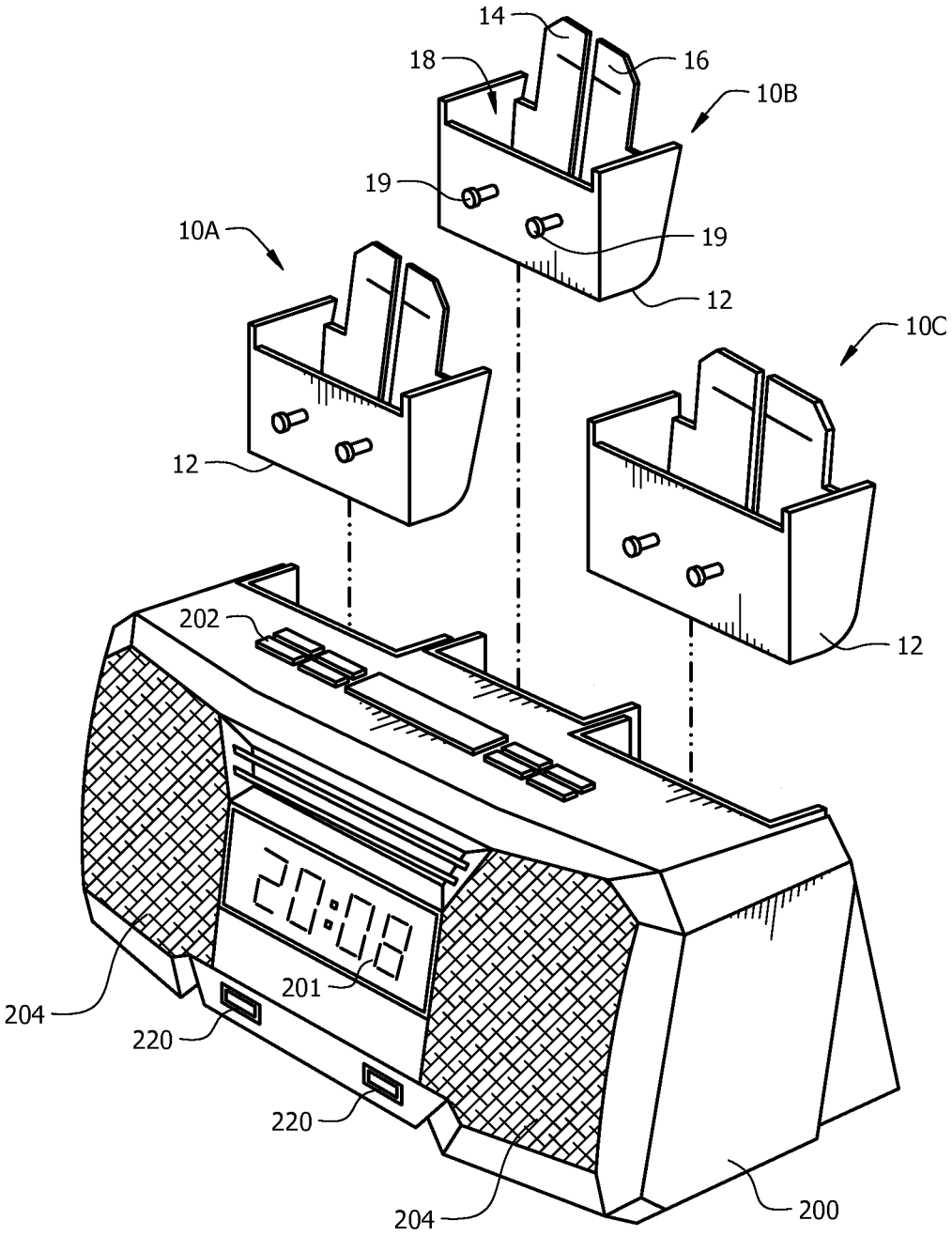


FIG. 3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18
16
10B
19
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204
220
220
204
200

FIG. 4

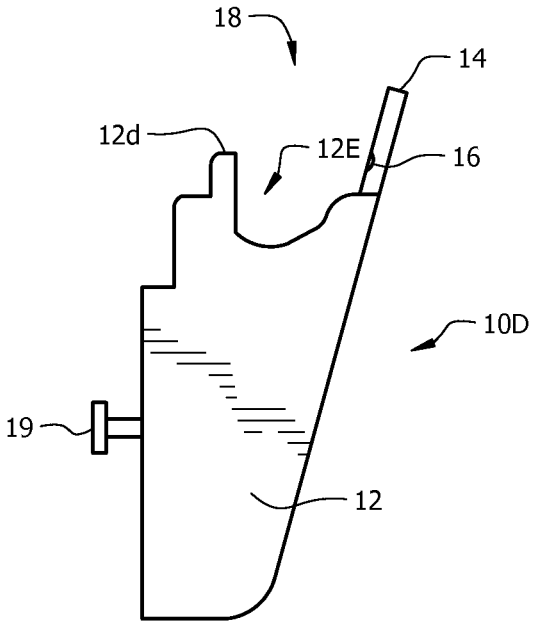


FIG. 5

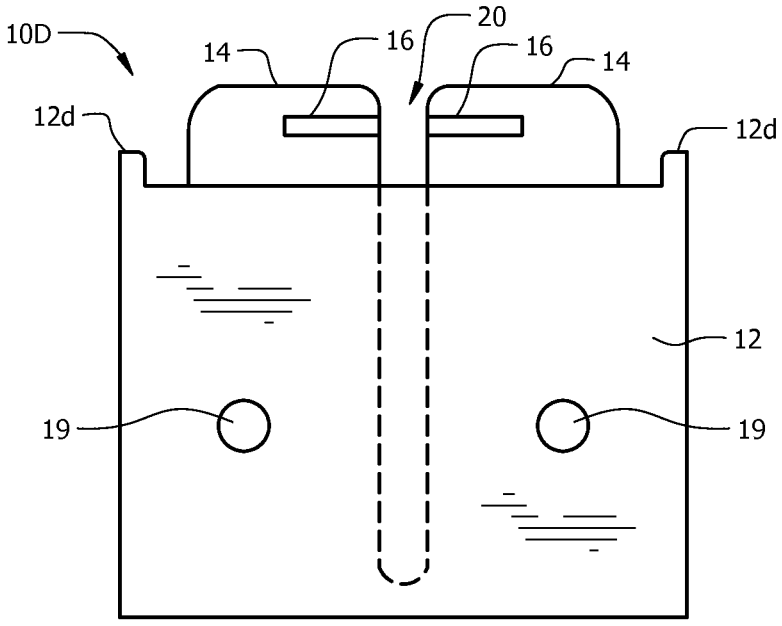
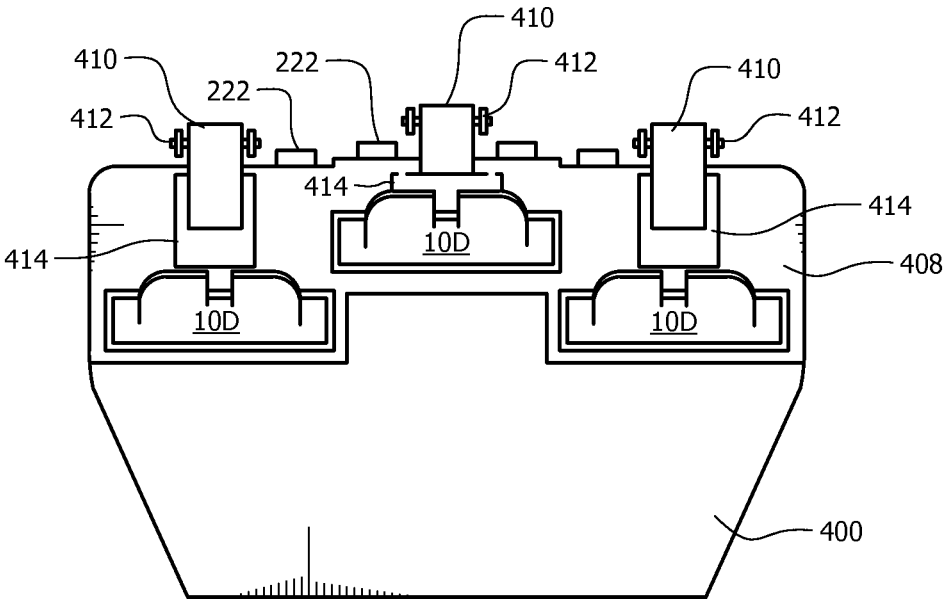


FIG. 6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10D
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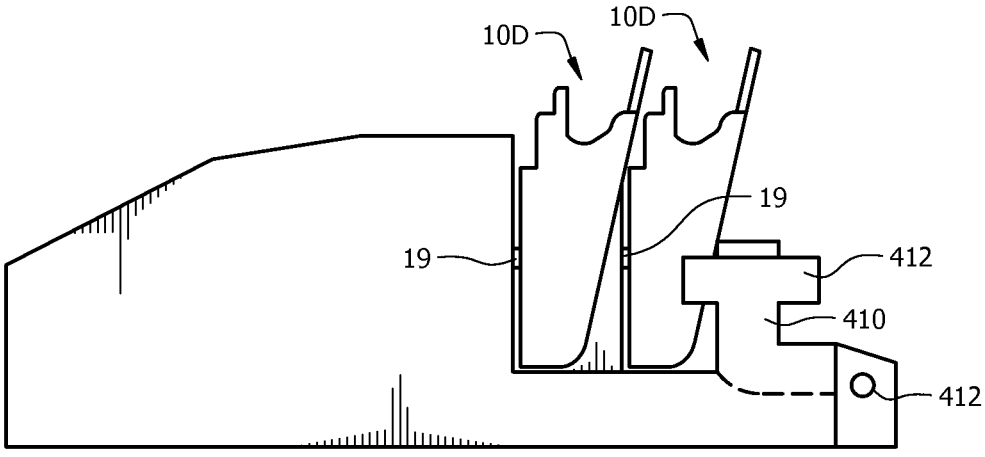
FIG. 7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19
19
412
410
412

FIG. 8

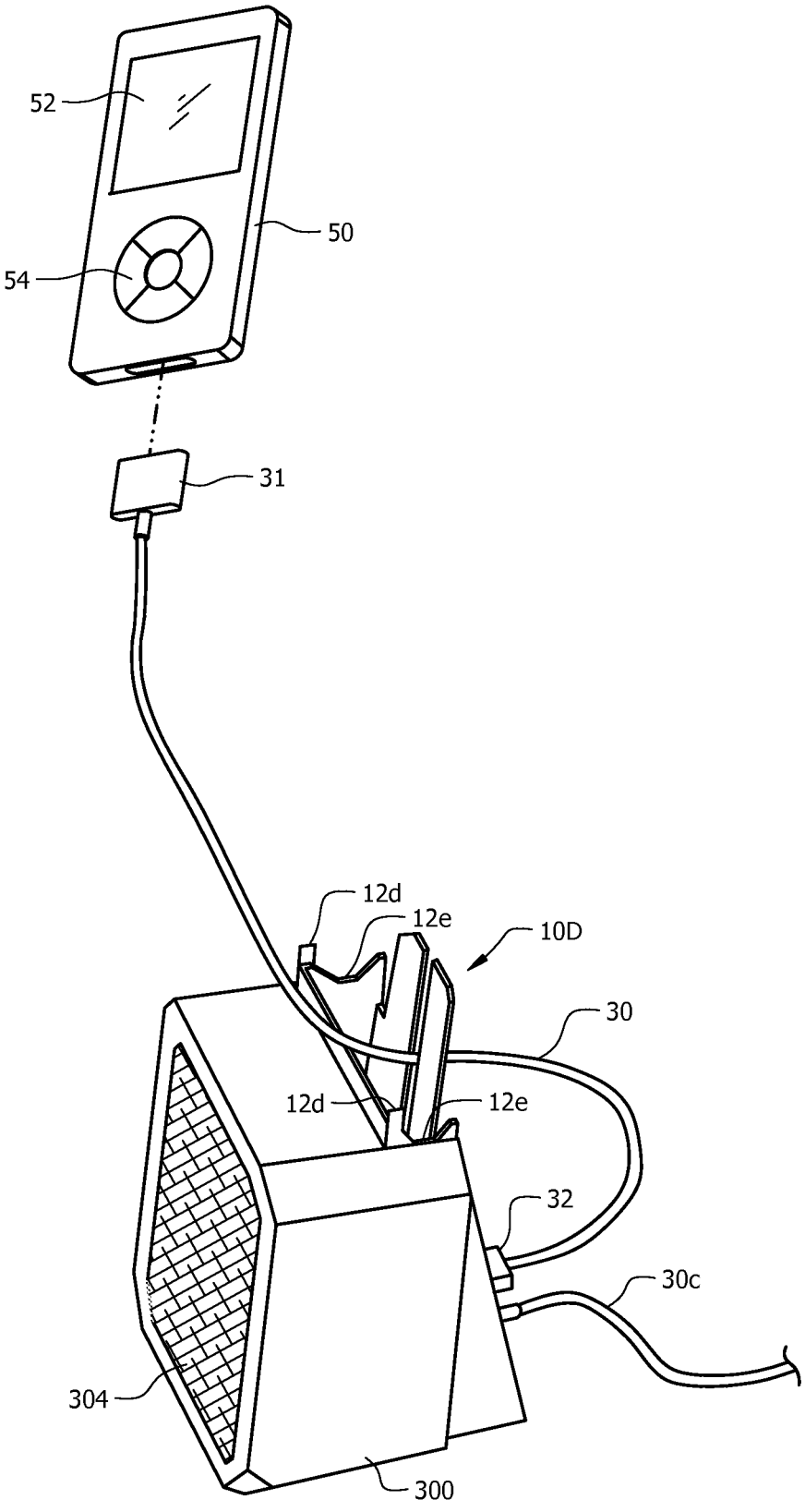
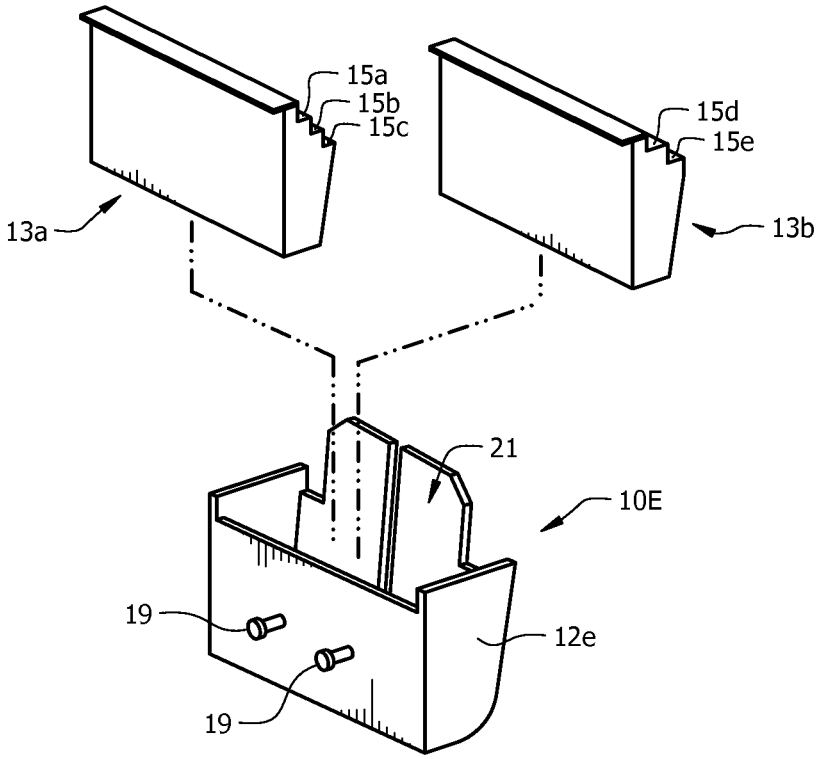


FIG. 9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15b
15c
15d
15e
13a
13b
21
10E
19
19
12e

FIG. 10

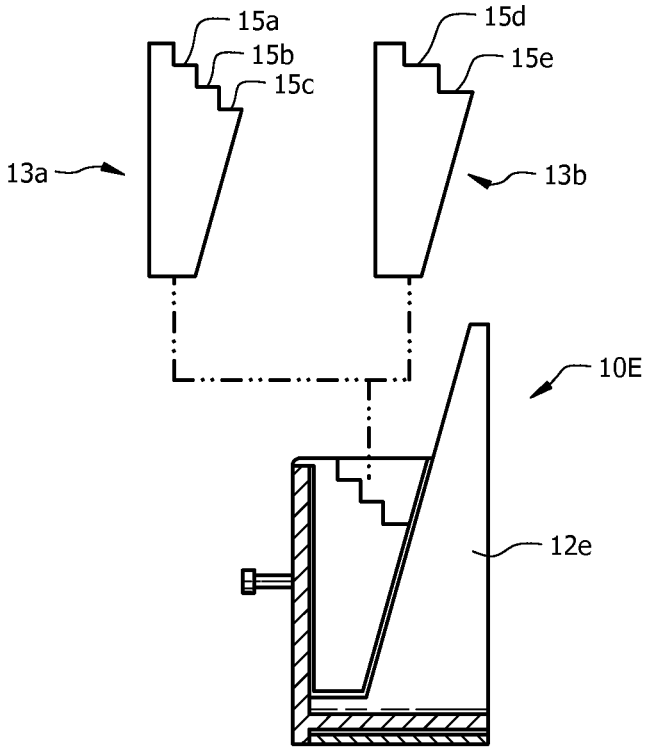
15a
15b
15c
15d
15e
13a
13b
10E
12e

FIG. 11

SYSTEM AND, METHOD FOR HOLDING AND POWERING THREE CONSUMER ELECTRONIC DEVICES

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of U.S. patent application Ser. No. 12/699,078, filed Feb. 3, 2010; which in turn is a Continuation-in-Part of U.S. patent application Ser. No. 11/676,850 titled "ADAPTABLE DIGITAL MUSIC PLAYER CRADLE," filed Feb. 20, 2007, now U.S. Pat. No. 7,742,293, the disclosure of both is hereby incorporated by reference. This application is also a continuation-in-part of U.S. patent application Ser. No. 13/373,076, filed Nov. 3, 2011. This application is related to U.S. application titled, "SYSTEM, METHOD AND APPARATUS FOR HOLDING MULTIPLE DEVICES," which was filed on even date herewith; attorney docket number 2235.28 and inventor Jack Strauser.

FIELD

This invention relates to the field of consumer electronic devices and more particularly to a system for supporting multiple consumer electronic devices while the consumer electronic devices are, for example, in use and/or charging.

BACKGROUND

Many consumer electronic devices are powered by an internal rechargeable battery and, to recharge the battery, the consumer electronic devices are connected to an external source of electrical power while an internal circuit controls charging of the internal rechargeable battery.

One recharging system includes what is often referred to as a "wall wart." A "wall wart" is typically a sealed transformer and/or power conditioning circuit connected to an typical A/C plug (approximately 117VAC in the USA). Conditioned power from the wall wart is transferred to the consumer electronic device through a cable and a cable connector. The connector mates with a corresponding connector on the consumer electronic device. For example, many new smart phones have miniature USB connectors. These miniature USB connectors mate with male miniature USB connectors at an end of a power cable, in turn connected to a wall wart that provides conditioned 5VDC power. This method of charging works well but causes clutter when users have multiple devices. Additionally, each wall wart that is kept plugged into A/C power drains a small amount of A/C/power even when not charging the consumer electronic devices. This results in a waste of energy.

Lately, there has been a movement to standardize on a voltage of 5VDC. This standard would apply whether power was provided through a miniature USB connector or through a proprietary connector, as is often used with cellular phones. Suppliers of consumer electronic devices often provide a cable having a standard USB connector on one end for connecting to a 5VDC source, and a mating connector for connecting to the consumer electronic device on the other end. The user is able to obtain 5VDC power for the standard USB connector at many sources, such as: wall warts that have a female standard USB connector, computer systems, airport charging stations, female USB connectors in vehicles, etc. Still, many find themselves using this solution with the included wall wart, leaving the wall wart plugged into A/C power for longer than needed.

There are cradles for holding consumer electronic devices and, optionally, use while charging. Some of the cradles use the wall wart provided with the consumer electronic devices. Others have their own power source, though generally still a wall wart. Since the display of the consumer electronic devices is held at an angle, the displays are useful while in these charging cradles. For example, one is able to watch a movie on some consumer electronic devices while the consumer electronic device is held in such cradles. Some such cradles include integrated connectors for directly connecting to the consumer electronic devices. Other cradles provide a cable for connection to the consumer electronic devices.

There are charging stations that have multiple USB female connectors for concurrently charging multiple consumer electronic devices. The charging station typically remains plugged into A/C power and, hence, still wastes energy and creates heat when not in use.

Recently, several manufacturers have created home entertainment systems that have one or more charging stations that connect to the consumer electronic devices, some having cradles to support the consumer electronic devices. Home entertainment systems already use some "parasitic" power to maintain clocks (time of day) and maintain a standby state waiting for a command from a remote control. Therefore, since such devices already use a small amount of "parasitic" power, there is little or no additional power used to make those devices ready to power/charge the consumer electronic devices.

Some such entertainment systems include a docking station for one particular consumer electronic device such as a docking station for one particular manufacturer's digital music player. In some entertainment systems, a consumer electronic device rests in and plugs into a separate, tethered, docking pod. In other entertainment systems the consumer electronic device has a cradle with or without a connector for the consumer electronic device.

In modern times, many individuals and families own multiple devices that need charging several times per week. For example, on any given day, a single person owning a smart phone, digital music player, and a tablet PC will find a need to charge one or more of these consumer electronic devices. There are charging stations that accept multiple devices, having cradles for smaller devices such as smart phones, yet requiring larger consumer electronic devices (e.g. tablet PCs) to rest on a horizontal surface. There are many drawbacks to resting such larger consumer electronic devices horizontally including, but not limited to, increasing the risk of damage from setting heavy objects on the larger consumer electronic device's display, splatter from nearby sources of liquids (e.g., sinks), increased dust adhesion, fluid penetration from a nearby spill, etc.

Some recent consumer products include charging ports and locations for holding one or more consumer electronic devices. There are many amplified speaker systems or clock radio systems that include a cradle with or without an integrated connector for one particular consumer electronic device. These consumer electronic devices generally support exactly one consumer electronic device. There is at least one consumer electronic device manufactured by Hammacher Schlemmer that supports two digital music players of one particular manufacturer, side-by-side, within a single cavity.

There are several problems with existing consumer electronic systems that support one or more consumer electronic devices. Many or all such consumer electronic systems support consumer electronic i-devices (e.g. those made by a particular manufacturer that names their products starting with an "i") from only a single manufacturer. Many or all such

consumer electronic systems support only a small, very limited size range of consumer electronic devices, typically only one or a small subset of all possible consumer electronic devices such as one i-device. Many or all such consumer electronic systems do not support larger consumer electronic devices such as tablet computers. Many or all such consumer electronic systems do not concurrently support smaller consumer electronic devices concurrently while supporting larger consumer electronic devices such as tablet computers. Many or all such consumer electronic systems do not provide proper physical support for larger consumer electronic devices such as tablet computers.

What is needed is a system that will support and charge a mix of consumer electronic devices in a proper orientation.

SUMMARY

A consumer electronic system for holding and providing power to as many as three consumer electronic devices has three cradles in a staggered configuration, such that, one of the cradles is positioned behind and between the remaining two cradles, thereby the cradle that is positioned behind the other two cradles is capable of supporting a larger consumer electronic device without blocking the front two cradles and support walls of the front two cradles provide a surface that supports the larger consumer device.

In one embodiment, a consumer electronic system is disclosed having an enclosure and three cradles extending from the enclosure. Each cradle has a cavity and a support wall. The cavity is sized to partially contain at least a first consumer electronic device such that the first consumer electronic device rests against the support wall. A first cradle of the three cradles is positioned between and behind a second and third cradle of the three cradles such that a second consumer device supported by the first cradle rests against the support wall of the first cradle and an edge of the second consumer device rests against a back surface of the support walls of at least one of the second and third cradles.

In another embodiment, a method of charging a consumer electronic device is disclosed, the method includes connecting a first end connector of a data/power cable to a first consumer electronic device. The data/power cable designed for the first consumer electronic device. The data/power cable is routed through a cable trough of a first cradle of three cradles. The three cradles are attached to a consumer electronic system and the first cradle is staggered behind and between the second cradle and the third cradle. Next, the first consumer electronic devices is placed into the first cradle, such that a back side of the first consumer electronic device rests against a support wall of the first cradle and a forward edge of the first consumer electronic device is held by at least one back side of the support wall of one of the second and third cradles. Next, a second end connector of the data/power cable is plugged (inserted, connected) into a receptacle of the consumer electronic system, thereby providing power to the first consumer electronic device.

In another embodiment, a consumer electronic system is disclosed including an enclosure and three cradles extending upward from a back surface of the enclosure. Each cradle has a cavity and a support wall. The cavity is sized to partially contain at least a first consumer electronic device while the first consumer electronic device rests against the support wall. The support wall includes a cable trough. A first cradle of the three cradles is positioned between and behind a second and third cradle of the three cradles such that a second consumer device supported by the first cradle rests against the support wall of the first cradle and an edge of the second consumer device rests against a back surface of the support walls of at least one of the second and third cradles.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

FIG. **1** illustrates a front perspective view of a consumer electronic system having multiple consumer electronic device cradles.

FIG. **2** illustrates a rear perspective view of the consumer electronic system having multiple consumer electronic device cradles.

FIG. **3** illustrates a front perspective view of the consumer electronic system with multiple consumer electronic devices supported in cradles.

FIG. **4** illustrates a front perspective view of a consumer electronic system having multiple removable consumer electronic device cradles.

FIG. **5** illustrates a side plan view of a consumer electronic device cradle.

FIG. **6** illustrates a front plan view of a consumer electronic device cradle.

FIG. **7** illustrates a top plan view of a consumer electronic system having three cradles and folding cable management.

FIG. **8** illustrates a side plan view of a consumer electronic system having three cradles and folding cable management.

FIG. **9** illustrates a side perspective view of an external speaker for use with a consumer electronic system having a cradle.

FIG. **10** illustrates a front perspective exploded view of cradle a consumer electronic system having a stepped insert.

FIG. **11** illustrates a side exploded view of cradle a consumer electronic system having a stepped insert.

DETAILED DESCRIPTION

Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Throughout the following detailed description, the same reference numerals refer to the same elements in all figures.

Throughout this description, the term, "consumer electronic device" refers to devices such as digital music players (i-devices, MP3 players, etc.), digital media players (e.g., MP4 players, movie players), cellular phones (e.g., smart phones, i-phones), portable Global Positioning Satellite (GPS) devices, tablet computing devices (e.g. i-tablet computers, etc.). Any portable consumer electronic device is anticipated, whether or not the consumer electronic device has an internal rechargeable power source. Some consumer electronic devices have persistent storage for storing audio content (music) or video content (movies) such as a micro-hard disk or flash memory. Under user control, these files are retrieved, uncompressed and converted to audio and/or video. The analog audio signal is often emitted in a 3.5 mm stereo headphone jack for the user to connect headphones or other reproduction devices. Some devices have a specialized data/power connector for connecting to a source of power and/or transferring data (e.g. music) to/from the consumer electronic device. Many consumer electronic devices have graphical displays.

Throughout this description, the term, "consumer electronic system" refers to systems that supports/holds and optionally charges consumer electronic device. Consumer

electronic systems optionally perform other functions such as amplifying audio and presenting the audio through speakers, displaying the time, clock radio functions, etc.

Throughout this description, the term, "USB port" refers to an industry standard interface port, commonly known as "Universal Serial Bus." This particular port has become ubiquitous for many applications and uses, many of which do not utilize the integrated high-speed serial interface, and, instead, use only the standard power connection for powering of devices connected to the USB ports (e.g., digital music players, smart phones . . .). Although the specific term, "USB" is used throughout this description and drawings, the invention and claims are not limited to any particular port or type of port, nor limited to using such port for power only, power and communications, or communications only.

Referring to FIGS. **1** and **2**, front (FIG. **1**) and rear (FIG. **2**) perspective views of a consumer electronic system **200** having multiple consumer electronic device cradles **208/210/212** are shown. In the examples shown, the consumer electronic system **200** includes an enclosure in the form of a clock radio **200** having a display **201**, speakers **204**, control buttons/switches **202**, and electrical components/circuitry (internal—not visible). The clock radio **200** is one example of such a consumer electronic system **200** and any other consumer electronic system **200** is anticipated. Such anticipated consumer electronic systems **200** include, but are not limited to, amplified speakers, home stereo systems, consumer electronic device charging stations, personal computers, etc. The consumer electronic system **200** has an enclosure, typically made from a hard material such as plastic or metal.

Several industry standard receptacles **220/222**, herein referred to as USB ports **220/222**, though not limited to USB ports **220/222**, are provided for connection to devices that require power from such ports. By providing such standardized ports **220/222**, it is anticipated that a wide variety of consumer electronic devices is supported, using cables that already exist for connection to such devices. Extra front or side located industry standard receptacles **220** are provided in anticipation of additional consumer electronic devices that require power from such ports. For example, the additional industry standard receptacles **220** are used if a user has more consumer electronic devices than the number of provided cradles **208/210/212**. Although two front-located USB ports **220** are shown, any number and location of such extra USB ports **220** is anticipated.

To hold consumer electronic devices, perhaps while charging or while in use, several cradles **208/210/212** are provided on a surface of the consumer electronic system **200**. In some embodiments, the cradles **208/210/212** are fixedly attached or integrated into the consumer electronic system **200**. In such embodiments, the resulting system is restricted to supporting (holding) devices that fit within the fixed cradles **208/210/212**. Being that there are a large number of sizes and shapes of consumer electronic devices, each type of cradle **208/210/212** is sized and shaped to support a subset of such consumer electronic devices. For example, in one version of cradles **208/210/212**, i-devices fit snuggly within the cradles **208/210/212**, while in another version of cradles **208/210/212**, devices from another manufacturer snugly fit with the cradles **208/210/212**.

In other embodiments, the cradles **208/210/212** are formed/manufactured as distinct components and removably attach to the consumer electronic system. In these embodiments, there are two or more types of cradles **208/210/212** that are interchangeable. Each type of cradle **208/210/212** supports/holds different sizes and shapes of consumer electronic devices. This versatility increases the size of the subset of consumer electronic devices supported up to and including the full range of known consumer electronic devices. Furthermore, it is anticipated that new cradles **208/210/212** are deployed to address unique sizes and shapes of new consumer electronic devices. This prevents the user from needing to purchase a new consumer electronic system **200**. When a new size or shape of cradle is needed, only the cradles **208/210/212** are replaced, reducing cost and reducing outdated products that prematurely get discarded.

The construction and attachment of the cradles **208/210/212** will be described later. In the example shown, the cradles **208/210/212** include optional nubs **12***d* for holding consumer electronic devices that are either rotated horizontally or are too wide to fit within the cradles **208/210/212**.

Several USB ports **222** are provided in the vicinity of the cradles **208/210/212** for providing power and/or data connections to the consumer electronic devices that are in/on the cradles **208/210/212**. For example, the standard USB plug **33** of power and/or data cables **30** is plugged into the USB ports **222**. A connector (not visible) at the other end of the power and/or data cables **30** is then connected to the consumer electronic devices. The cable **30** is shown wound in a compartment for cable management, with the cable routed through the optional cable trough **20** for connection to the consumer electronic device.

In some embodiments, an audio input jack **224** is provided for audio connection to one or more of the consumer electronic devices **50/56/60** supported by the cradles **208/210/212**. One end of an audio cable is connected to the consumer electronic devices **50/56/60** supported by one of the cradles **208/210/212**, and the other end of the audio cable is connected to the audio input jack **224**. The audio input jack **224** transmits analog (or digital) audio data from the consumer electronic device **50/56/60** to the consumer electronic system **200** for reproduction at the speakers **204**.

Although any power source is anticipated for the consumer electronic system **200**, including internal batteries, in the example shown a power input jack **226** is provided for accepting AC or DC power from a standard power source, or from a wall-wart power supply, etc.

In some embodiments, an optional cable management features is included. An exemplary cable management system is shown in FIG. **2**. In the cable management system the excess cables are wrapped into loops, or wrapped around spools, then pushed into cavities in the base of the consumer electronic system **200** and, optionally protected with covers **270**.

Referring to FIG. **3**, a front perspective view of the consumer electronic system **200** with multiple consumer electronic devices **50/56/60** supported in cradles **208/210/212** is shown. The staggered locations of the cradles **208/210/212** is preferred because some consumer electronic devices **60** are wide (e.g. a tablet computer **60**). Staggering enables the larger consumer electronic devices **60** to be held in the rear cradle **208** while not encroaching on the forward cradles **210/212**, thereby allowing concurrent use of the forward cradles **210/212** for smaller consumer electronic devices (e.g. a digital music player **50** and a smart phone **56**). A further advantage of said staggering is visible in FIG. **3** in which a lower front edge of the larger consumer electronic device **60** in the rear cradle **208** rests against the rear surface of the support walls **14** of the forward cradles **210/212** (see FIGS. **5** and **6**), preventing the consumer electronic device **60** from sliding forward.

The consumer electronic devices **50/56/60** typically have displays **52** (e.g. LCDs) and either keypads/buttons **54** for controls or touch screen interfaces presented on the displays **52**. The consumer electronic devices **50/56/60** shown are examples of such devices and the exemplary devices shown

are not meant to be exclusive. There are many sizes, shapes and configurations of consumer electronic devices **50/56/60**.

Referring to FIG. **4**, a front perspective view of a consumer electronic system **200** having multiple removable consumer electronic device cradles **10**A/**10**B/**10**C is shown. As discussed previously, there are many advantages of removable cradles **10**A/**10**B/**10**C. It is fully anticipated that any number of fixed cradles **208/210/212** and/or removable cradles **10**A/**10**B/**10**C be included with a particular consumer electronic system **200** in any combination. In this example, each of the exemplary removable cradles **10**A/**10**B/**10**C has a base **12**, a cavity **18** for containing an end of the consumer electronic device and a support wall **14** for supporting the consumer electronic device, preferably on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold clip-on micro-sized consumer electronic devices (not shown). The height of the support wall **14** is such that the consumer electronic device rests against the support wall **14** without falling over. Therefore, it is anticipated that, in some embodiments, the support wall **14** is taller and/or shorter than shown in FIG. **4**. A taller support wall **14** for the rear staggered cradle **10**B is anticipated for supporting larger consumer electronic devices **50/56/60** such as tablet computers **60**. In some embodiments, one or all of the support walls **14** are extendable (not shown) and/or a separate extender (not shown) is provided to extend the height of one or all support walls **14**.

For removably attaching the cradles **10**A/**10**B/**10**C to the consumer electronic system **200**, a mounting system is provided such as mounting posts **19** that depend from the front surface of the base **12** of the cradles **10**A/**10**B/**10**C. These mounting posts **19** slide into key holes (not shown) on a surface of the consumer electronic system **200** (e.g., a back surface of the consumer electronic system).

Although all cradles **10**A/**10**B/**10**C are shown having one particular connection system consisting of mounting posts **19** that mate with corresponding key holes (not shown) on a surface of the consumer electronic system **200**, any known removable attachment system is anticipated. Such anticipate cradles **10**A/**10**B/**10**C include, but are not limited to, mounting posts **19** and key holes, mounting slots that slide into mating mounting slots, hook-and-loop material, partially adhesive materials, etc. Several mounting systems are shown in the priority documents that are included by reference.

For support of multiple sizes of consumer electronic devices **50/56/60**, there are several optional features for the cradles **10**A/**10**B/**10**C. One optional feature snuggly supports several different sizes of a subset of all consumer electronic devices **50/56/60** without requiring inserts or removable sections. With such optional feature, the cradles **10**A/**10**B/**10**C are supplied with one or more inner sub-cavities formed by a number of ledges, as disclosed in U.S. patent application Ser. No. 12/699,078. This patent application was previously incorporated by reference. Using these inner sub-cavities, the smaller sized consumer electronic device **50/56/60** will fit snuggly in the deepest inner sub-cavity; the next larger consumer electronic device **50/56/60** will fit snuggly in the next higher inner sub-cavity; etc.

Although not required, the cradles **10**A/**10**B/**10**C optionally have horizontal/vertical support features as shown in detail in the examples of FIGS. **5** and **6**. Some embodiments of the cradles **10**A/**10**B/**10**C include the optional horizontal/vertical support features of the cradles **10**D shown in FIGS. **5** and **6**. These features include one or both of a beveled side edge **12***e* and a nub **12***d*. The beveled side edge **12***e* and/or nub **12***d* provide support for a consumer electronic device **50/56/60** that either does not fit within the cavity **18** or, because of user preference, is rotated either 90 degrees or −90 degrees from horizontal. For some consumer electronic devices **50/56/60**, the longer edge of the consumer electronic device **50/56/60** will not fit within the cavity **18**. In such a situation, one of the longer side edges of the consumer electronic device **50/56/60** rests on and is supported by one or both of the beveled side edge **12***e* and the nub **12***d*.

Referring to FIGS. **5** and **6**, a side plan view (FIG. **5**) and a front plan view (FIG. **6**) of a consumer electronic device cradle **10**D for horizontal/vertical support is shown. The consumer electronic device cradle **10**D has a base **12**, a cavity **18** for containing an end of the consumer electronic device and a support wall **14** for supporting the consumer electronic device, preferably on a slight slant towards the rear. In some embodiments, a pair of front clip indentations **16** is provided to hold clip-on micro-sized consumer electronic devices (not shown). The same style cradle **10**D is also anticipated as a non-removable cradle as described above. The height of the support wall **14** is such that the consumer electronic device rests against the support wall **14**, preferably without falling over. Therefore, it is anticipated that, in some embodiments, the support wall **14** is taller than shown in FIGS. **5** and **6**, especially the support wall **14** of the rear staggered cradle **10**D for supporting larger consumer electronic devices **50/56/60** such as tablet computers **60**. In some embodiments, one or all of the support walls **14** are extendable (not shown) and/or a separate extender (not shown) is provided to extend the height of one or all support walls **14**.

For removably attaching the cradle **10**D to the consumer electronic system **200**, a mounting system is provided such as mounting posts **19** that extend from the front surface of the base **12** of the cradle **10**D. These mounting posts **19** slide into key holes (not shown) on a surface of the consumer electronic system **200** (e.g., a back surface of the consumer electronic system). As discussed, many removable attachment mechanisms are anticipated.

Although the cradle **10**D is shown having one particular connection system consisting of mounting posts **19** that mate with corresponding key holes (not shown) on a surface of the consumer electronic system **200**, any known removable attachment system is anticipated including, but not limited to, mounting posts **19** and key holes, mounting slots that slide into mating mounting slots, hook-and-loop material, partially adhesive materials, etc. Several mounting systems are shown in the priority documents that are included by reference.

The cradles **10**A/**10**B/**10**C/**10**D/**208/210/212** optionally have a cable trough **20** for routing a data and/or power cable from the consumer electronic device **50/56/60** to the USB ports **220/222**.

Referring to FIGS. **7** and **8**, a top plan view of a consumer electronic system **400** having three cradles **10**D and folding cable management **410/412/414** and a side plan view of a consumer electronic system **400** having three cradles **10**D and folding cable management **410/412/414** is shown. As above, the consumer electronic system **400** includes an enclosure and internal electronics in the form of any type of consumer electronic system such as a clock radio, charging station, amplified speakers, etc. In this example, there are three cradles **10**D in a staggered configuration, though any number of cradles **10**D is anticipated. The cradles **10**D are either removable or fixed (e.g. part of the consumer electronic system **400** or permanently affixed to the consumer electronic system **400**). In the examples shown, the cradles **10**D are removable and the mounting peg **19** is visible. It is anticipated that when the cradles **10**D are in place, the mounting arrangement is not visible and the consumer electronic system **400** appears as if the cradles **10**D are permanently attached.

Again, any cradle **10**D attachment mechanism and any type/format of cradle **10**D are anticipated.

Many consumer electronic devices **50**/**56**/**60** are supplied with cables that, at one end has a connector **31** (see FIG. **9**) that mates with the consumer electronic device **50**/**56**/**60**, and at the other end have a standard size USB plug. Often these cables are long, for example between three feet and six feet long. Such lengths create a cable management issue, especially when three or more consumer electronic devices **50**/**56**/**60** are supported. To reduce cable clutter, several optional cable management features are shown. The first cable management system is shown in FIG. **2**. In this system, the excess cables are wrapped into loops or wrapped around spools then pushed into cavities in the base of the consumer electronic system **400** and, optionally covered with covers **270**.

In a second cable management system, shown in FIGS. **7** and **8**, the excess cable is wrapped around spools **410**/**414**. To enable winding of the spools **410**/**414**, in some embodiments, the spools **410**/**414** are hingedly coupled to the consumer electronic system **400**, for example to a base **408** of the consumer electronic system **400**. In the example shown in FIGS. **7** and **8**, the spools **410**/**414** are hingedly coupled to the base **408** by pins **412**. Any hinged and/or bendable system is anticipated. For example, in some embodiments, the spool arm **410** is flexible enough as to bend outwardly for wrapping the excess cable, and then bend back against the cradles **10**D after winding.

In the example shown, to compensate for the staggered center cradle **10**D, the spool cap **414** behind the center cradle **10**D is orientated side-ways. This orientation is in contrast to the spool caps **414** behind the forward mounted cradles **10**D, which are oriented in-line with the forward cradles **10**D.

Referring to FIG. **9**, a side perspective view of an external speaker **300** for use with a consumer electronic system **200** having a cradle **10**D is shown. This external speaker **300** works with another consumer electronic system **200**/**400** and provides both a detached speaker **304** as well as an additional cradles **10**D for supporting and/or charging an additional consumer electronic device **50**/**56**/**60**. It is anticipated that the external speaker **300** has either a fixed cradle **10**D or a removably affixed cradle **10**D as described above. It is anticipated that any style and/or size of cradle **10**D be used with the external speaker **300**, including the stepped version for supporting a variety of sizes of consumer electronic devices **50**/**56**/**60**.

A consumer electronic device **50** having a display **52** and controls **54** is shown in FIG. **9**. Also shown is a cable **30** that has a device plug **31** that interfaces with the device and a standard USB plug **32** that interfaces with a USB port on the external speaker **300**. The cable **30** is routed through the cable trough (slot) **20** when the consumer electronic device **50** is positioned within the cradle **10**D. Optionally, the consumer electronic device is rotated 90 degrees or −90 degrees and the cable **30** is not routed through the cable trough **20**.

The speaker system **300** is interfaced to the consumer electronic system **200**/**400** by another USB cable **30***c* and/or a separate audio cable (not shown) as needed.

Referring to FIGS. **10** and **11**, a front perspective exploded view and a side exploded view of cradle a consumer electronic system having a stepped insert are shown. Although the stepped, multi-ledge design provides for snug support of several sizes of consumer electronic devices, there are many sizes and shapes of consumer electronic devices. Some are thinner than others, some are thicker than others, some have rounded edges, some have sharp edges, and some are wide, while some are narrow. Due to the number of possible sizes, it is very difficult to provide one cradle **208**/**210**/**212**/**10**A/**10**B/**10**C/**10**D that will snuggly hold all possible sizes and shapes of consumer electronic devices. To address this limitation, the cradle **10**E has a blank cavity **21** for accepting inserts **13**A/**13**B. Although two inserts **13**A/**13**B are shown, any number and size/shape of inserts **13**A/**13**B are anticipated. In the examples shown, the first insert **13**A has three steps **15**A/**15**B/**15**C and snuggly supports three sizes of consumer electronic devices while the second insert **13**B has two steps **15**D/**15**E and snuggly supports two sizes of consumer electronic devices. Any number of steps **15**A/**15**B/**15**C/**15**D/**15**E is anticipated. In the examples shown, the steps **15**A/**15**B/**15**C/**15**D/**15**E provide for various thicknesses of consumer electronic devices. In some inserts **13**A/**13**B, also have side steps (not shown) to snuggly fit different widths of consumer electronic devices.

Equivalent elements can be substituted for the ones set forth above such that they perform in substantially the same manner in substantially the same way for achieving substantially the same result.

It is believed that the system and method as described and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely exemplary and explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes.

What is claimed is:

1. A consumer electronic system comprising:

an enclosure; and

three cradles extending from the enclosure, each cradle having a cavity and a support wall, the cavity sized to contain at least one portion of at least a first consumer electronic device, the first consumer electronic device resting against the support wall;

a first cradle of the three cradles positioned between and behind a second and third cradle of the three cradles such that a second consumer electronic device supported by the first cradle rests against the support wall of the first cradle and an edge of the second consumer device rests against a back surface of the support walls of at least one of the second and third cradles.

2. The consumer electronic system of claim **1**, wherein the first consumer electronic device is selected from the group consisting of a music player or a cellular phone, and the second consumer electronic device is a table computer.

3. The consumer electronic system of claim **1**, wherein at least one of the cradles is removably attached to the enclosure.

4. The consumer electronic system of claim **1**, wherein the support wall of at least one of the cradles includes a cable trough for routing a cable between the consumer electronic system and a consumer electronic device held by the cradles.

5. The consumer electronic system of claim **1**, wherein the cavity includes at least two steps such that the cavity and the steps snuggly support at least two sizes and/or shapes of consumer electronic devices selected from the set of consumer electronic devices.

6. The consumer electronic system of claim **1**, wherein the consumer electronic system of claim **1** further includes means for managing cables.

7. The consumer electronic system of claim **1**, wherein the consumer electronic system is a clock radio having controls, at least one speaker, and a display.

8. The consumer electronic system of claim **1**, wherein the consumer electronic system includes at least three industry

standard ports, each of the industry standard ports providing power to consumer electronic devices that are held by the cradles.

9. A method of charging a consumer electronic device, the method comprising:

connecting a first end connector of a data/power cable to a first consumer electronic device, the data/power cable designed for the first consumer electronic device;

routing the data/power cable through a cable trough of a first cradle of three cradles, the three cradles attached to a consumer electronic system, the first cradle staggered behind and between a second cradle and a third cradle of the three cradles;

placing the first consumer electronic devices into the first cradle, a back side of the first consumer electronic device resting against a support wall of the first cradle and a forward edge of the first consumer electronic device held by at least one back side of the support wall of one of the second and third cradles; and

plugging a second end connector of the data/power cable into a receptacle of the consumer electronic system, thereby providing power to the first consumer electronic device.

10. The method of claim **9**, further comprising:

connecting a first end connector of a second data/power cable to a second consumer electronic device, the second data/power cable designed for the second consumer electronic device;

routing the data/power cable through a cable trough of the second cradle of the three cradles;

placing the second consumer electronic devices into the second cradle, a back side of the second consumer electronic device resting against a support wall of the second cradle and the second consumer electronic device held within a cavity of the second cradle; and

plugging a second end connector of the second data/power cable into a second receptacle of the consumer electronic system, thereby providing power to the second consumer electronic device.

11. The method of claim **10**, further comprising:

connecting a first end connector of a third data/power cable to a third consumer electronic device, the third data/power cable designed for the third consumer electronic device;

routing the third data/power cable through a cable trough of the third cradle of three cradles;

placing the second consumer electronic devices into the third cradle, a back side of the third consumer electronic device resting against a support wall of the third cradle and the third consumer electronic device held within a cavity of the third cradle; and

plugging a second end connector of the third data/power cable into a third receptacle of the consumer electronic system, thereby providing power to the third consumer electronic device.

12. The method of claim **9**, wherein the consumer electronic system is a clock radio.

13. The method of claim **9**, further comprising:

removing the third cradle from the consumer electronic system;

attaching a different cradle to the consumer electronic system;

connecting a first end connector of a fourth data/power cable to a fourth consumer electronic device, the fourth data/power cable designed for the fourth consumer electronic device;

routing the fourth data/power cable through a cable trough of the different cradle;

placing the fourth consumer electronic device into the different cradle, a back side of the fourth consumer electronic device resting against a support wall of the different cradle and the fourth consumer electronic device held within a cavity of the different cradle; and

plugging a second end connector of the fourth data/power cable into a third receptacle of the consumer electronic system, thereby providing power to the fourth consumer electronic device.

14. The method of claim **9**, further comprising the steps of:

connecting a first end connector of an audio cable to an audio output connector of the first consumer electronic device;

connecting a second end connector of the audio cable to an audio input jack of the consumer electronic system.

15. A consumer electronic system comprising:

an enclosure; and

three cradles extending upward from a back surface of the enclosure, each cradle having a cavity and a support wall, the cavity sized to partially contain at least a first consumer electronic device, the first consumer electronic device resting against the support wall, the support wall having a cable trough;

a first cradle of the three cradles positioned between and behind a second and third cradle of the three cradles such that a second consumer device supported by the first cradle rests against the support wall of the first cradle and an edge of the second consumer device rests against a back surface of the support walls of at least one of the second and third cradles.

16. The consumer electronic system of claim **15**, wherein at least one of the cradles is removably attached to the enclosure.

17. The consumer electronic system of claim **15**, wherein the cavity includes at least two steps such that the cavity and the steps snuggly support at least two sizes and/or shapes of consumer electronic devices selected from the set of consumer electronic devices.

18. The consumer electronic system of claim **15**, wherein the consumer electronic system further includes means for managing cables.

19. The consumer electronic system of claim **15**, wherein the consumer electronic system is a clock radio having controls, at least one speaker, and a display.

20. The consumer electronic system of claim **15**, wherein the consumer electronic system includes at least three industry standard ports, each of the industry standard ports providing power to consumer electronic devices that are held by the cradles.

* * * * *

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DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

JUNE 10, 2014

PTAS

FRANK LIEBENOW
11199 69TH STREET N
LARGO, FL 33773

502843542

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ASSIGNOR:
STRAUSER, JACK DOC DATE: 06/09/2014

ASSIGNEE:
DOK SOLUTION LLC
1185 GOODEN CROSSING
LARGO, FLORIDA 33778

APPLICATION NUMBER: 11672753 FILING DATE: 02/08/2007
PATENT NUMBER: 7414200 ISSUE DATE: 08/19/2008
TITLE: THREE-WAY CABLE ARRANGEMENT FOR KARAOKE DEVICES AND THE LIKE

APPLICATION NUMBER: 11672784 FILING DATE: 02/08/2007
PATENT NUMBER: 8160489 ISSUE DATE: 04/17/2012
TITLE: KARAOKE DEVICE WITH INTEGRATED MIXING, ECHO AND VOLUME CONTROL

APPLICATION NUMBER: 11676850 FILING DATE: 02/20/2007
PATENT NUMBER: 7742293 ISSUE DATE: 06/22/2010
TITLE: ADAPTABLE DIGITAL MUSIC PLAYER CRADLE

APPLICATION NUMBER: 12699078 FILING DATE: 02/03/2010
PATENT NUMBER: 8116077 ISSUE DATE: 02/14/2012
TITLE: DIGITAL MUSIC PLAYER CRADLE ATTACHMENT

APPLICATION NUMBER: 12889941 FILING DATE: 09/24/2010
PATENT NUMBER: 8284978 ISSUE DATE: 10/09/2012
TITLE: SYSTEM, METHOD AND APPARATUS FOR DIRECTIONAL SPEAKERS

APPLICATION NUMBER: 12889951 FILING DATE: 09/24/2010
PATENT NUMBER: 8311256 ISSUE DATE: 11/13/2012
TITLE: SYSTEM, METHOD AND APPARATUS FOR HOLDING A DEVICE AND CONTAINING A MICROPHONE

APPLICATION NUMBER: 12889983 FILING DATE: 09/24/2010
PATENT NUMBER: 8432667 ISSUE DATE: 04/30/2013
TITLE: SYSTEM, METHOD AND APPARATUS FOR SUPPORTING AND PROVIDING POWER TO A MUSIC PLAYER

APPLICATION NUMBER: 13345994 FILING DATE: 01/09/2012
PATENT NUMBER: 8675356 ISSUE DATE: 03/18/2014
TITLE: SYSTEM AND, METHOD FOR HOLDING AND POWERING THREE CONSUMER ELECTRONIC DEVICES

APPLICATION NUMBER: 13346018 FILING DATE: 01/09/2012
PATENT NUMBER: 8593804 ISSUE DATE: 11/26/2013
TITLE: SYSTEM, METHOD AND APPARATUS FOR HOLDING MULTIPLE DEVICES

APPLICATION NUMBER: 13418690 FILING DATE: 03/13/2012
PATENT NUMBER: ISSUE DATE:
TITLE: KARAOKE DEVICE WITH INTEGRATED MIXING, ECHO AND VOLUME CONTROL

APPLICATION NUMBER: 14069401 FILING DATE: 11/01/2013
PATENT NUMBER: ISSUE DATE:
TITLE: HANGING FOLDER DEVICE CHARGING SYSTEM

APPLICATION NUMBER: 14134227 FILING DATE: 12/19/2013
PATENT NUMBER: ISSUE DATE:
TITLE: STAGGERED CHARGING SYSTEM

APPLICATION NUMBER: 29344720 FILING DATE: 10/02/2009
PATENT NUMBER: D614201 ISSUE DATE: 04/20/2010
TITLE: KARAOKE GUITAR AMPLIFIER

APPLICATION NUMBER: 29344723 FILING DATE: 10/02/2009
PATENT NUMBER: D617812 ISSUE DATE: 06/15/2010
TITLE: TOP LOAD CDG PLAYER

APPLICATION NUMBER: 29344727 FILING DATE: 10/02/2009
PATENT NUMBER: D614202 ISSUE DATE: 04/20/2010
TITLE: KARAOKE SYSTEM WITH STAND

APPLICATION NUMBER: 29344728 FILING DATE: 10/02/2009
PATENT NUMBER: D614669 ISSUE DATE: 04/27/2010
TITLE: DESKTOP KARAOKE SYSTEM

APPLICATION NUMBER: 29344731 FILING DATE: 10/02/2009
PATENT NUMBER: D614670 ISSUE DATE: 04/27/2010
TITLE: PORTABLE KARAOKE MP3 LYRIC PLAYER

APPLICATION NUMBER: 29363425 FILING DATE: 06/09/2010
PATENT NUMBER: D678395 ISSUE DATE: 03/19/2013
TITLE: WIRELESS GUITAR TRANSMITTER

APPLICATION NUMBER: 29363429 FILING DATE: 06/09/2010
PATENT NUMBER: D641376 ISSUE DATE: 07/12/2011
TITLE: PORTABLE KARAOKE SYSTEM

APPLICATION NUMBER: 29363431 FILING DATE: 06/09/2010
PATENT NUMBER: D652824 ISSUE DATE: 01/24/2012
TITLE: ACOUSTIC GUITAR MICROPHONE

ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION

ONE YEAR LIMITED WARRANTY

HMDX sells its products with the intent that they are free of defects in manufacture and workmanship for a period of one year from the date of original purchase, except as noted below. HMDX warrants that its products will be free of defects in material and workmanship under normal use and service. This warranty extends only to consumers and does not extend to Retailers.

To obtain warranty service on your HMDX product, contact a Consumer Relations Representative by telephone at 1-800-753-3000 or email cservice@hmdxaudio.com for assistance. Please make sure to have the model number of the product available. Representatives are available 8:30 am-7:00 pm EST Monday-Friday.

No COD's will be accepted.

HMDX does not authorize anyone, including, but not limited to, Retailers, the subsequent consumer purchaser of the product from a Retailer or remote purchasers, to obligate HMDX in any way beyond the terms set forth herein. This warranty does not cover damage caused by misuse or abuse; accident; the attachment of any unauthorized accessory; alteration to the product; improper installation; unauthorized repairs or modifications; improper use of electrical/power supply; loss of power; dropped product; malfunction or damage of an operating part from failure to provide manufacturer's recommended maintenance; transportation damage; theft; neglect; vandalism; or environmental conditions; loss of use during the period the product is at a repair facility or otherwise awaiting parts or repair; or any other conditions whatsoever that are beyond the control of HMDX.

This warranty is effective only if the product is purchased and operated in the country in which the product is purchased. A product that requires modifications or adoption to enable it to operate in any other country than the country for which it was designed, manufactured, approved and/or authorized, or repair of products damaged by these modifications is not covered under this warranty.

THE WARRANTY PROVIDED HEREIN SHALL BE THE SOLE AND EXCLUSIVE WARRANTY. THERE SHALL BE NO OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OR ANY OTHER OBLIGATION ON THE PART OF THE COMPANY WITH RESPECT TO PRODUCTS COVERED BY THIS WARRANTY. HMDX SHALL HAVE NO LIABILITY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES. IN NO EVENT SHALL THIS WARRANTY REQUIRE MORE THAN THE REPAIR OR REPLACEMENT OF ANY PART OR PARTS WHICH ARE FOUND TO BE DEFECTIVE WITHIN THE EFFECTIVE PERIOD OF THE WARRANTY.

NO REFUNDS WILL BE GIVEN. IF REPLACEMENT PARTS FOR DEFECTIVE MATERIALS ARE NOT AVAILABLE, HMDX RESERVES THE RIGHT TO MAKE PRODUCT SUBSTITUTIONS IN LIEU OF REPAIR OR REPLACEMENT.

This warranty does not extend to the purchase of opened, used, repaired, repackaged and/or resealed products, including but not limited to sale of such products on Internet auction sites and/or sales of such products by surplus or bulk resellers. Any and all warranties or guarantees shall immediately cease and terminate as to any products or parts thereof which are repaired, replaced, altered, or modified, without the prior express and written consent of HMDX.

This warranty provides you with specific legal rights. You may have additional rights which may vary from state to state. Because of individual regulations, some of the above limitations and exclusions may not apply to you. For more information regarding our product line in the USA, please visit: www.hmdxaudio.com

HMDX Audio
Service Center

1-800-753-3000
8:30 am- 7:00 pm (EST)
M-F

Email:
cservice@hmdxaudio.com

IB-HXB510

Bluetooth
HMDX Jam Zzz

Jam Zzz Bluetooth® Bedside Sound System

Please Take A Moment Now
Register
Your Product At:
www.hmdxaudio.com
Your valuable input regarding this product will help us create the products you will want in the future.

Por manual de instrucciones e información de garantía en español visítenos en www.hmdxaudio.com

Instruction Manual and Warranty Information HX-B510

1 year limited warranty

Congratulations on your purchase.

Thank you for purchasing the HMDX Jam Zzz Bluetooth® Bedside Sound System for smartphones, tablets, pads, notebook computers and other Bluetooth® enabled devices. Before you begin to Spread the Jam, please take a few moments to read through this manual for an easy explanation of the features and operation of your new Jam Zzz.

Be sure to check out the entire JAM product line on our website www.HMDXaudio.com — Where there's a Jam there's a party!

Jam Zzz Bluetooth® Bedside Sound System Main Features

- Connects wirelessly using proven Bluetooth® technology with smartphones, tablets, pads and many notebooks and MP3 players
- Built-in speaker phone
- Full function dual alarm with snooze and gradual wake
- Digital FM radio
- Superior sound quality
- USB charging port
- 3.5mm Aux-In port
- Enhanced LCD display
- Battery backup (Battery type CR-2025 included)

Getting Started

Unpack the unit carefully. Remove all the accessories from the carton. Do not remove any labels or stickers on the bottom of the unit or adapter. Before setting up the unit, verify that the following are present:

- Jam Zzz Bluetooth® Bedside Sound System
- AC power adapter
- 3.5mm audio cable

Jam Zzz Bluetooth® Bedside Sound System Controls and Connections

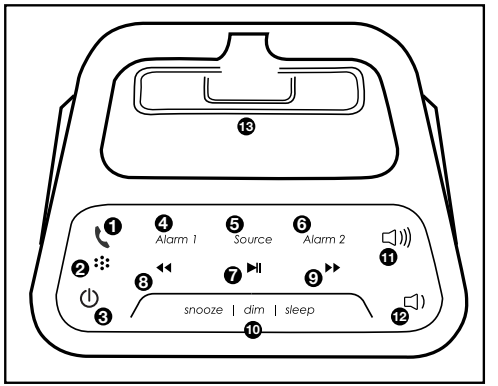

Fig. 1

1. Speaker phone selector
2. Speaker phone mic
3. Power
4. Alarm 1
5. Source
6. Alarm 2
7. Play/Pause
8. Reverse/Last Track/FM Scan Down
9. Forward/Next Track/FM Scan up
10. Snooze/Dim/Sleep
11. Volume up
12. Volume down
13. Universal docking cradle
14. Time Set
15. Aux Line-In Audio Jack
16. AC Adapter Input Jack
17. USB Charging Port
18. FM Antenna

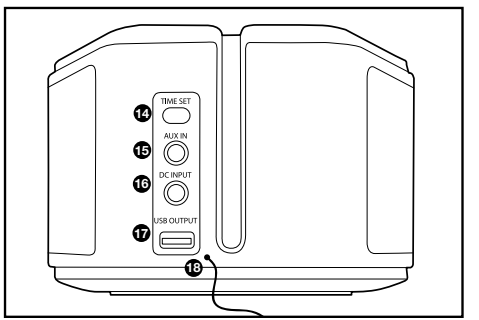

Fig. 2

Power Source

This unit is supplied with an AC adapter; take the following steps to connect the adaptor.

1. Unwind the power cord of the AC adaptor to its full length.
2. Connect the AC adapter to the DC Input (Fig. 2).
3. Plug the AC adapter into an outlet (100v – 240VAC 50/60 Hz). Connecting this system to any other power source may cause damage to the system. For sufficient ventilation, keep other objects at least 4 inches away from the unit.
4. To power the unit off completely, unplug the AC adapter from the wall outlet.

FUNCTIONALITY

Setting Clock Time – Pre-set Clock

This unit is equipped with a pre-set clock, meaning the clock will automatically set itself when first plugged in.

Please note: the clock will automatically default to Eastern Standard Time and will need to be adjusted for other time zones by manually setting the clock.

Setting Clock Time – Manually Setting the Clock

1. Set time when unit is plugged in, but ensure the power button has not been activated and is off.
2. Press TIME SET button on the back of the unit to begin the Time Setting mode. You will be prompted to select 24 hour or 12 hour display, use the volume buttons on the top of the unit to select the 24/12 hour mode, press TIME SET button again to select the hour using the volume buttons on the top to advance the hour (a PM indicator will display when hour is advanced accordingly), press TIME SET button again to select the minute using the volume buttons on the top to advance.

Setting and Using the Alarms – Setting Alarm 1 or Alarm 2

1. Press and hold the desired alarm button (ALARM 1 or ALARM 2) located on the top of the Unit. The hour will begin flashing.
2. Use the FORWARD and REVERSE buttons (or the volume up/down buttons) on top of the unit to adjust the hour, paying attention to the AM and PM indicators.
3. Press the alarm button again and the minute will begin flashing. Use the FORWARD and REVERSE buttons again to adjust the minute.
4. Press the alarm button again to select the source. The JAM Zzz alarm can be set to Beep or FM using the FORWARD and REVERSE buttons. The alarm cannot be set to the Bluetooth® source.
5. Press alarm button again to adjust the maximum volume level of the gradual wake feature (alarm begins soft and slowly gets loader) by using the FORWARD and REVERSE buttons to adjust the sound level up or down.

Turning Off the Alarm/Snooze Operation

The JAM Zzz is equipped with gradual wake, which means that the alarm begins soft and slowly gets louder. This will ensure a non-jarring wakeup.

1. Press the SNOOZE bar located on the top of the unit and the alarm will sound again in nine minutes.
   Please note: You may only press the Snooze button during the Alarm mode for one hour (6 times). After the sixth time, the alarm will turn off and will not sound again until the next set time.
2. To turn off the alarm, press the (ALARM 1 or ALARM 2) button on the top of the unit.

Listening to your device wirelessly over Bluetooth®

To connect to Bluetooth

1. Press the POWER button located on top of the unit.
2. Press the Source button on top of unit until “BT” icon image appears on the LCD screen.
3. Follow the instructions of your device to pair the unit.
4. Pair your device with the unit by selecting JAM Zzz from your Bluetooth® listings on your device or selecting YES. Jam Zzz will sound a hint tone once pairing has occurred.
5. Press play on the connected device.

NOTE: You may need to adjust the volume on your audio device to achieve proper volume.

NOTE: When pairing with a computer, please consult your computer manufacturer for Bluetooth® pairing instructions and/or the latest Bluetooth® Drivers.

Listening to a non-Bluetooth® audio device

1. Plug a 3.5mm audio cable (included), into the Aux audio line input located on the back of the unit.
2. Plug the other end of the audio cable into the line out or headphone jack of your audio device.
3. Press the POWER button located on top of the JAM Zzz.
4. Press the SOURCE button on the unit until the Aux icon appears on the display.
5. Press play on the connected device.

NOTE: You may need to adjust the volume on your audio device to achieve proper volume.

NOTE: Track forward/reverse and play/pause controls on Jam Zzz will not work when using Line-In Audio Jack.

Listening to the Radio

Note: For best reception, fully extend the wire antenna. DO NOT strip, alter or attach to other antennas.

1. To listen to the radio, press the POWER button located on top of the unit.
2. Press the SOURCE button on the unit until FM and station frequency appears on the display.
3. Use the FORWARD and REVERSE buttons on the top of the unit to select desired station. For auto seek press and hold FORWARD or REVERSE for 2 seconds and the tuner will find the next station with the strongest frequency.
4. Press the POWER button to turn the unit off.

Sleep Feature

While listening to the Bluetooth®, radio or Aux sources, press the SNOOZE/DIM/SLEEP button to activate the sleep feature. This allows you to set a sleep timer for 90, 60, 30, or 15 minutes. Once set, the unit will continue playing for the set length of time, then will automatically turn off.

Speaker Phone

If a Bluetooth® enabled phone is connected wirelessly to the unit you can receive calls and speak through the microphone on the unit. To answer an incoming call press the ( ) button on the unit or the answer button on your phone.

Note: To place calls you will have to use your phone.

USB Charging Port

This USB port is for charging only. It cannot be used to play music through the unit. In order to use the USB charging feature, you must have the proper cord to connect to your device with a USB Type A connector on the other end.

Volume Control

To adjust the volume use the volume buttons located on the top of the unit.

Display Dimmer Control

Press the SNOOZE/DIM/SLEEP bar to adjust the backlight intensity of clock display. The power needs to be off to use the dimmer control.

Backup Battery

This alarm clock is equipped with a battery backup feature (1 CR-2025 battery included and already installed) to keep the clock time and alarm settings during a power outage. The battery is located on the bottom of the unit for easy access.

Maintenance

To Store:

You may leave the unit on display, or you can store it in its packaging in a cool, dry place.

To Clean:

Only use a soft dry cloth to clean the enclosure of the unit. NEVER use liquids or abrasive cleaners.

FCC Disclaimer

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT SAFEGUARDS:

When using an electrical product, basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING

- WARNING: Do not place speakers too close to ears. May cause damage to eardrums, especially in young children.
- Use this product only for its intended use as described in this manual. Do not use attachments not recommended by HMDX.
- HMDX is not liable for any damage caused to iPod/MP3 player or any other device.
- Do not place or store product where it can fall or be dropped into a tub or sink.
- Do not place or drop into water or any other liquid.
- Not for use by children. THIS IS NOT A TOY.
- Never operate this product if it has a damaged cord, plug, cable or housing.
- Keep away from heated surfaces.
- Only set on dry surfaces. Do not place on a surface wet from water or cleaning solvents.

Por manual de instrucciones e información de garantía en español visítenos en www.hmdxaudio.com

DIXIT LAW FIRM, PA
3030 North Rocky Point Drive West, Suite 260, Tampa, FL 33607
Tel: 813-252-3999
Fax: 813-252-3997
www.dixitlaw.com

August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9414

SUPERWAREHOUSE BUSINESS PRODUCTS, INC.
3400 SW 26th Terrace, Suite A-8
Fort Lauderdale, FL 33312

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
U.S. Patent No. 8,432,667, *System, Method and Apparatus for Supporting and Providing Power to a Music Player*
U.S. Patent No. 8,675,356, *System and, Method for Holding and Powering Three Consumer Electronic Devices*
U.S. Patent No. 8,593,804, *System, Method and Apparatus for Holding Multiple Devices*

To Whom It May Concern:

The Dixit Law Firm represents DOK Solution LLC ("DOK") in connection with its intellectual property rights. DOK is the owner of the above referenced patents, all of which relate to a patented dock or cradle for supporting one or more digital devices.

On information and belief, you and/or your company are infringing and/or inducing others to infringe by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, products or processes that practice one or more inventions claimed in the DOK Patents. For example, you and/or your company infringe and continue to infringe, by designing, manufacturing, selling, offering for sale, and/or importing the HMDX JAM ZZZ Bluetooth Alarm Clock (the "JAM ZZZ Alarm Clock"), which comes within the scope of one or more of the DOK Patents without authority or license from Plaintiff. Our review of the JAM ZZZ Alarm Clock shows that it clearly infringes on at least one or more claims of the above DOK patents, particularly in the design of its "Universal Docking Cradle."

Consequently, the enclosed complaint has been filed in the United States District Court for the Middle District of Florida. However, we have purposely avoided serving your organization with process, in hopes that you may prefer short-term resolution of DOK's claims. Along those lines, DOK is willing to immediately commence discussions for granting a license allowing you to continue selling your infringing products. Please contact me within 14 days of the date of this letter to confirm that you are interested in pursuing licensing discussions.

In the meantime, we hereby demand that you and/or your company immediately cease and desist from all further designing, manufacturing, selling, offering for sale, and/or importing the JAM ZZZ Bluetooth Alarm Clock. In addition, and within the next 14 days, please provide us the following information:

1. A summary, by month and year, of the number of JAM ZZZ Alarm Clocks designed, manufactured or imported by you in or into the United States.
2. A summary, by month and year, of the number of JAM ZZZ Alarm Clocks sold, in the United States.
3. A sales summary showing the name of all retailers and/or distributors to whom you sold the JAM ZZZ Alarm Clock and the date(s) and quantities sold to each retailer.
4. The number of JAM ZZZ Alarm Clocks you currently have in inventory.

If desired, we can execute a written non-disclosure agreement covering the information provided in response to above points 1-4 prior to your disclosure of this information.

If you fail to contact us within 20 days of your receipt of this letter, we will serve the Complaint on your organization and seek to recover attorney's fees and court costs, in addition to damages suffered by our client because of your afore-described conduct.

We look forward to receiving your response to this letter.

Sincerely,
Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

cc: DOK Solutions LLC

DIXIT LAW FIRM, PA
3030 North Rocky Point Drive West, Suite 260, Tampa, FL 33607
Tel: 813-252-3999
Fax: 813-252-3997
www.dixitlaw.com

August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9407

SONIC ELECTRONIX, INC.
28340 Avenue Crocker, Suite 202
Valencia, CA 91355

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
U.S. Patent No. 8,432,667, *System, Method and Apparatus for Supporting and Providing Power to a Music Player*
U.S. Patent No. 8,675,356, *System and, Method for Holding and Powering Three Consumer Electronic Devices*
U.S. Patent No. 8,593,804, *System, Method and Apparatus for Holding Multiple Devices*

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On information and belief, you and/or your company are infringing and/or inducing others to infringe by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, products or processes that practice one or more inventions claimed in the DOK Patents. For example, you and/or your company infringe and continue to infringe, by designing, manufacturing, selling, offering for sale, and/or importing the HMDX JAM ZZZ Bluetooth Alarm Clock (the "JAM ZZZ Alarm Clock"), which comes within the scope of one or more of the DOK Patents without authority or license from Plaintiff. Our review of the JAM ZZZ Alarm Clock shows that it clearly infringes on at least one or more claims of the above DOK patents, particularly in the design of its "Universal Docking Cradle."

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We look forward to receiving your response to this letter.

Sincerely,
Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

cc: DOK Solutions LLC

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3030 North Rocky Point Drive West, Suite 260, Tampa, FL 33607
Tel: 813-252-3999
Fax: 813-252-3997
www.dixitlaw.com

August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9391

OFFICEMAX, INC.
263 Shuman Blvd.
Naperville, IL 60563

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
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Sincerely,
Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

cc: DOK Solutions LLC

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Fax: 813-252-3997
www.dixitlaw.com

August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9384

NEWEGG, INC.
16839 E. Gale Avenue
Industry, CA 91745

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
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3. A sales summary showing the name of all retailers and/or distributors to whom you sold the JAM ZZZ Alarm Clock and the date(s) and quantities sold to each retailer.
4. The number of JAM ZZZ Alarm Clocks you currently have in inventory.

If desired, we can execute a written non-disclosure agreement covering the information provided in response to above points 1-4 prior to your disclosure of this information.

If you fail to contact us within 20 days of your receipt of this letter, we will serve the Complaint on your organization and seek to recover attorney's fees and court costs, in addition to damages suffered by our client because of your afore-described conduct.

We look forward to receiving your response to this letter.

Sincerely,
Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

cc: DOK Solutions LLC

DIXIT LAW FIRM, PA
3030 North Rocky Point Drive West, Suite 260, Tampa, FL 33607
Tel: 813-252-3999
Fax: 813-252-3997
www.dixitlaw.com

August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9360

KOHL'S DEPARTMENT STORES, INC.
129 Orange Street
Wilmington, DE 19801

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
U.S. Patent No. 8,432,667, *System, Method and Apparatus for Supporting and Providing Power to a Music Player*
U.S. Patent No. 8,675,356, *System and, Method for Holding and Powering Three Consumer Electronic Devices*
U.S. Patent No. 8,593,804, *System, Method and Apparatus for Holding Multiple Devices*

To Whom It May Concern:

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On information and belief, you and/or your company are infringing and/or inducing others to infringe by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, products or processes that practice one or more inventions claimed in the DOK Patents. For example, you and/or your company infringe and continue to infringe, by designing, manufacturing, selling, offering for sale, and/or importing the HMDX JAM ZZZ Bluetooth Alarm Clock (the "JAM ZZZ Alarm Clock"), which comes within the scope of one or more of the DOK Patents without authority or license from Plaintiff. Our review of the JAM ZZZ Alarm Clock shows that it clearly infringes on at least one or more claims of the above DOK patents, particularly in the design of its "Universal Docking Cradle."

Consequently, the enclosed complaint has been filed in the United States District Court for the Middle District of Florida. However, we have purposely avoided serving your organization with process, in hopes that you may prefer short-term resolution of DOK's claims. Along those lines, DOK is willing to immediately commence discussions for granting a license allowing you to continue selling your infringing products. Please contact me within 14 days of the date of this letter to confirm that you are interested in pursuing licensing discussions.

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We look forward to receiving your response to this letter.

Sincerely,
Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

cc: DOK Solutions LLC

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Fax: 813-252-3997
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August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9421

FKA DISTRIBUTING CO., LLC
3000 Pontiac Trail
Commerce Township, MI 48390

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
U.S. Patent No. 8,432,667, *System, Method and Apparatus for Supporting and Providing Power to a Music Player*
U.S. Patent No. 8,675,356, *System and, Method for Holding and Powering Three Consumer Electronic Devices*
U.S. Patent No. 8,593,804, *System, Method and Apparatus for Holding Multiple Devices*

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We look forward to receiving your response to this letter.

Sincerely,
Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

cc: DOK Solutions LLC

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August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9353

BEST BUY CO. OF MINNESOTA, INC.
7601 Penn Avenue South
Richfield, MN 55423

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
U.S. Patent No. 8,432,667, *System, Method and Apparatus for Supporting and Providing Power to a Music Player*
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Dixit Law Firm, PA

Shyamie Dixit, Attorney

SD/sc
Enclosure

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August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9346

BED BATH & BEYOND, INC.
650 Liberty Avenue
Union, NJ 07083

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
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Shyamie Dixit, Attorney

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August 6, 2014

VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED 7010 1870 0000 6176 9377

AMAZON.COM.DEDC, LLC
410 Terry Avenue North
Seattle, WA 98109

RE: Infringement of DOK Solution LLC's Patents (the "DOK Patents"):
U.S. Patent No. 7,742,293, *Adaptable Digital Music Player Cradle*
U.S. Patent No. 8,116, 077, *Digital Music Player Cradle Attachment*
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SD/sc
Enclosure

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