CARRYING DEVICE FOR CARRYING A PLURALITY OF HANDHELD ELECTRONIC DEVICES

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ABSTRACT

A carrying device for carrying a plurality of handheld electronic devices includes a plurality of carrying units and at least a connecting unit connected between the carrying units. The handheld electronic devices are disposed in a receiving space of the carrying units, such that respective display screens of the handheld electronic devices are grouped together to display. The handheld electronic devices carried by the carrying units are rotatable, stay at a fixed angle, or shut relative to each other by the connecting unit. The carrying device allows the handheld electronic devices to be positioned side by side so as to extend the display screens, display more data, or enlarge data, thereby enhancing performance and protecting the handheld electronic devices.
FIG. 10
CARRYING DEVICE FOR CARRYING A PLURALITY OF HANDHELD ELECTRONIC DEVICES

CROSS-REFERENCE TO RELATED APPLICATION


FIELD OF TECHNOLOGY

0002. This invention relates to a carrying device and particularly to a carrying device for carrying a plurality of handheld electronic devices in the meantime.

BACKGROUND

0003. Along with progressive electronic technology, Smartphone and Tablet PC are continuously weedied through the old to bring forth the new and are thus the essential of the consumer electronic products. Further, a customer may have multiple Smartphones and Tablet PCs. The functions of existing Smartphones and Tablet PCs are progressive day by day and the Smartphones and Tablet PCs may run for video playback, photo showing, map search, e-book reading, webpage browsing, and social gaming. However, the size of screen of the Smartphone is less than 5 inches, which is inconvenient for a user to show a menu and operate; for example, the font of e-book or webpage is too small to read or the visual field of map is too small to search, which needs to amplify the operated menu and move the visual field for viewing all the information in the menu that is shown.

0004. Further, even if the size of screen of the mainstream Tablet PCs is mostly 7 inches, many 7-inch Tablet PCs are also brought to the market and featured with a light and handy advantage. When being used, such a Tablet PC with the small-size screen has defects and shortage as the Smartphone.

0005. Thus, a carrying device for carrying a plurality of handheld electronic devices carries two handheld electronic devices to make the two display screens of the handheld electronic devices to be grouped together and display; furthermore, the feature of display screen extension or enlargement is provided to help the two handheld electronic devices together operate or execute each program and next increase the devices’ performance for the request of consumers, which will be actively disclosed in this invention.

0006. Consequently, because of the technical defects of described above, the applicant keeps on carving unflaggingly through wholehearted experience and research to develop the present invention, which can effectively improve the defects described above.

SUMMARY

0007. The object of the present invention is to provide a carrying device for carrying a plurality of handheld electronic devices to make the display screens of the handheld electronic devices to be grouped together and display, the feature of display screen extension or enlargement being thereby provided for displaying more data or amplifying data.
[0017] In the carrying device, each carrying unit further comprises a mounting mouth connected to the receiving space, allowing the handheld electronic device to be mounted in the receiving space through the mounting mouth. Further, at least one closing part is provided in the mounting mouth for closing the mounting mouth. The closing part may be a magnetic button, a lock, a retaining ring, a wedge, or a sticky button.

[0018] In the carrying device, the connecting unit is a sectional pivot used to make the carrying units connect to or separate from each other.

[0019] Next, in the carrying device, at least one of the handheld electronic devices comprises a touch display screen.

[0020] The carrying device according to this invention is provided for the user to make the plurality of electronic devices to be carried respectively in the carrying units so that the plurality of handheld electronic devices may be grouped in parallel for screen displaying and connected through a USB, a Bluetooth, or a NFC as a wired or wireless transmission interfacing technology for transfer. One of the plurality of handheld electronic devices may be made to serve as a master device and the rests may be made to serve as a slave device for grouping the display screens of the plurality of handheld electronic devices and further extending the screens, displaying more data, or enlarging data, thereby enhancing performance and protecting the handheld electronic devices.

BRIEF DESCRIPTION

[0021] FIG. 1 is a schematic assembly view of a carrying device in a first embodiment of this invention;

[0022] FIG. 2 is a schematic sectional view of the carrying device in the first embodiment of this invention;

[0023] FIG. 3 is a partially sectional view of section A of the carrying device as shown in the first embodiment of this invention of FIG. 2;

[0024] FIG. 4 is an exploded view of an adjustment portion of the carrying device in the first embodiment of this invention;

[0025] FIG. 5 is a schematic view illustrating the service state of carrying device in the first embodiment of this invention;

[0026] FIG. 6 is a schematic view illustrating the carrying device provided two handheld electronic devices in the first embodiment of this invention;

[0027] FIG. 7 is a schematic view illustrating the shut state of carrying device in the first embodiment of this invention;

[0028] FIG. 8 is a schematic assembly view of the carrying device in a second embodiment of this invention;

[0029] FIG. 9 is a schematic assembly view of the carrying device in a third embodiment of this invention;

[0030] FIG. 10 is a schematic assembly view of the carrying device in a fourth embodiment of this invention;

[0031] FIG. 11 is a schematic exploded view of the carrying device in a fourth embodiment of this invention; and

[0032] FIG. 12 is a schematic view illustrating the carrying device in a fifth embodiment of this invention.

DETAILED DESCRIPTION

[0033] Now, the present invention will be described more specifically with reference to the following embodiments. It is to be noted that the following descriptions of preferred embodiments of this invention are presented herein for purpose of illustration and description only; it is not intended to be exhaustive or to be limited to the precise form disclosed.

[0034] Refer to FIGS. 1 through 7 as schematic views illustrating a carrying device in a first embodiment of this invention. In the embodiment, two handheld electronic devices 10 are installed as an example to make the two display screens of the handheld electronic devices to be grouped together and display. In the embodiment, two carrying units 1 and a connecting unit 2 are provided. Each of the carrying units 1 is provided with a receiving space 11. The receiving space 11 may be used to receive the handheld electronic device 10. The connecting unit 2 is provided between the carrying units 1 for making the carrying units 1 connect to each other and keep rotatable and open, stay at a fixed angle, or shut relative to each other.

[0035] In the embodiment, the carrying unit 1 may be a rectangle plate and may be arranged side by side and applied to the handheld electronic devices 10. One or two of the handheld electronic devices 10 may be a Smartphone provided with a touch screen. Further, the connecting unit 2 may be a flexible connecting part connected between the fringes of carrying units 1 to make the opposite carrying units 1 connect to each other and keep rotatable, stay at a fixed angle, or shut relative to each other, thereby making the handheld electronic devices 10 to be arranged side by side for displaying their screens or shutting relative to each other.

[0036] Next, the receiving space 11 of each of the carrying units 1 may comprise at least one fixing unit 3. The fixing unit 3 comprises at least one adjustment portion 32. The adjustment portion 32 is used to adjust fixing unit 3 for a size of each of the handheld electronic devices 10, further making each fixing unit secure each handheld electronic device 10. As shown in FIGS. 5 and 6, the carrying device in the first embodiment of this invention is provided for the user to make the electronic devices 10 to be secured respectively in the fixing units 3, making the display screens of the handheld electronic devices 10 to be grouped together and display. As shown in FIG. 7, the carrying unit 1 of each of the handheld electronic devices 10 may be made to shut relative to each other so as to receive each of the devices 10 in the carrying device.

[0037] In this embodiment, the fixing unit 3 may comprise a clamping portion 31 and an adjustment portion 32. The clamping portions 31 are two by two arranged in the receiving space 11, as shown in FIGS. 5 and 6. The two clamping portions 31 opposite to each other may be formed at two long sides of the handheld electronic devices 10 opposite to each other and may be adjusted by means of the adjustment portions 32 so as to make the fixing unit 3 satisfy the size of each type of handheld electronic device 10; thus, it may be used in general for most of mainstream Smartphones in the market, such as HTC smart Phone, iPhone, iPad and the like, or for Tablet PC as handheld electronic device 10 in the market. The adjustment portion 32 may be also formed on the two clamping portions 31, not being limited to the embodiment in the figure.

[0038] Firstly, refer to FIGS. 3 and 4 illustrating the adjustment portion 32 that comprises a tooth-shaped member 321 and a retaining part 322. The tooth-shaped member 321 may be arranged at the bottom of receiving space 11. The retaining part 322 may be provided in at least one of the clamping portions 31 to be wedged into the tooth-shaped member 321, allowing the clamping portions 31 to clamp and fix the hand-
held electronic device 10; namely, the clamping portions 31 is thus made to movably adjust each of the fixing units 3 for a position along the tooth-shape member 321 by means of the retaining part 322, thereby clamping and fixing each of the handheld electronic devices 10.

[0039] Also, with reference to FIGS. 3 and 4, the adjustment portion 32 may further comprise a guidance groove 323 and a gliding part 324. The guidance groove 323 is provided in the receiving space 11 of each of the carrying units 1. The tooth-shaped member 321 is provided in the guidance groove 323. The gliding part 324 is provided on the clamping portion 31 and may glide with each other and be provided in the guidance groove 323. Further, a side of the gliding part 324 may protrude with an elastic fragment 325 and thus the retaining part 322 is provided at a side of the tooth-shaped member 321 opposite to the elastic fragment 325 to wedge to the tooth-shaped member 321 for adjustment. Further, to avoid the clamping portions 31, after being adjusted and positioned, from being loose, the adjustment portion 32 may comprise a fastener 326. The fastener 326 is movably provided in the clamping portion 31 to press against a side of the elastic fragment 325 opposite to the retaining part 322. After the clamping portions 31 are adjusted and positioned on the tooth-shaped member 321 by means of the elastic fragment 325 and the retaining part 322, the fastener 326 may be used to press against the elastic fragment 325 so that each of the handheld electronic devices 10 may be stably clamped.

[0040] With reference to FIG. 8 as a schematic view illustrating the carrying device in a second embodiment of this invention, the carrying device is also provided with two clamping portions 31 opposite to each other. What is in the embodiment is different from what is in the first embodiment in that the clamping portions 31 are provided in a position opposite to two short sides of each of the handheld electronic devices 10 to shorten a distance between the handheld electronic devices 10 for achievement of a better display effect of the screens adjacent to each other and arranged side by side. And the adjustment portion 32 and other structures are the same as the first embodiment, so unnecessary details are not given here.

[0041] With reference to FIG. 9 as a schematic view illustrating the carrying device in a third embodiment of this invention, four clamping portions 31 are arranged two by two in a position opposite to four sides of each of the handheld electronic devices 10; namely, the clamping portions 31 clamp together the four sides of each of the handheld electronic devices 10. And the adjustment portion 32 and other structures are the same as the first embodiment, so unnecessary details are not given here.

[0042] Refer to FIGS. 10 through 11 as schematic views illustrating a carrying device in a fourth embodiment of this invention. Each of the receiving spaces 11 is a groove. The fixing unit 3 is provided in the receiving space 11 and is thus used to secure each of the handheld electronic devices 10 in the receiving space 11 of carrying unit 1. Besides, in the embodiment, the connecting unit 2 is a hinge provided at a fringe of the each of the carrying units 1 for making the carrying units 1 connect to each other and keep rotatable, stay at a fixed angle, or shut relative to each other. And the fixing unit 3 and other structures are the same as the first embodiment, so unnecessary details are not given here.

[0043] With reference to FIG. 12 as a schematic view illustrating the carrying device in a fifth embodiment of this invention, the carrying device may be in the form of a leather sleeve or a protective cover. An elastic fixing part 4 is provided around each receiving space 11. In other words, the elastic fixing part 4 is provided at a side of the receiving space 11 formed in each of the carrying units 1. The elastic fixing part 4 is used to cover part of a side or four sides of each of the handheld electronic devices 10 to secure the handheld electronic device 10. Further, each carrying unit 1 comprises a mounting mouth 41. The mounting mouth 41 is connected to the receiving space 11, allowing the handheld electronic device to be mounted in the receiving space 11 through the mounting mouth 41. At least one closing part is provided in the mounting mouth 41 for closing part or all of the mounting mouth 41 and thereby preventing the handheld electronic device 10 from dropping out of the carrying unit 1. In the embodiment, the closing part 42 is, for example, a magnetic button but not limited herein and may be a lock, a retaining ring, a wedge, or a sticky means, such as a magic felt and the like, which makes the mounting mouth 41 to be repeatedly opened or closed. Thus, each of the handheld electronic devices 10 may be made to pass through the mounting mouth 41 and thus the elastic fixing part 4 is used to make each of the handheld electronic devices 10 to be received in the receiving space 11. The connecting unit 2 connected between the carrying units 1 may be used to make the carrying units 1 connect to each other and keep rotatable, stay at a fixed angle, or shut relative to each other, thereby making the handheld electronic devices 10 to be arranged side by side for displaying their screens. On the other hand, the connecting unit 2 is a sectional pivot used to make the carrying units 1 connect to or separate from each other so that each different handheld electronic device 10 may be received in each of the carrying units 1, and the sectional pivots are assembled to make the carrying units 1 connect to each other for making the display screens of the handheld electronic devices 10 to be grouped together and display.

[0044] In the first embodiment through the fifth embodiment, the carrying device may be provided for the user to install two mobile phones or two Tablet PCs as the handheld electronic devices 10 separately in the carrying units 1 and clamp and secure them by using the fixing unit 3. In this invention, the handheld electronic devices 10 is made to be arranged side by side and connect to each other. Thus, the user may use a USB, a built-in Bluetooth, or a NFC laser wireless transmission interface of the handheld electronic device 10 to make two handheld electronic devices 10 connect to each other for application; for example, one of the two handheld electronic devices 10 is used as a master device and the other one is used as a slave device. Alternatively, one of the two handheld electronic devices 10 may be used as a virtual keyboard and the other one may be used as a display screen. The screens of the two handheld electronic devices 10 may be used together for showing videos, photos, or map information.

[0045] Thus, the carrying device according to this invention may carry the plurality of handheld electronic devices to make the display screens of the handheld electronic devices to be grouped together and display, the feature of display screen extension or enlargement being thereby provided for displaying more data or amplifying data and enhancing performance and protecting the handheld electronic devices.

[0046] While the invention has been described in terms of what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention needs not be limited to the disclosed embodiment. On the
contrary, it is intended to cover various modifications and similar arrangements included within the spirit and scope of the appended claims which are to be accorded with the broadest interpretation so as to encompass all such modifications and similar structures.

The claims are as follows:

1. A carrying device for carrying a plurality of handheld electronic devices, comprising:
   a plurality of carrying units each provided with a receiving space for receiving one of the plurality of handheld electronic devices, the receiving space further receiving at least one fixing unit, the at least one fixing unit comprising at least one adjustment portion for adjusting the at least one fixing unit, thereby allowing each of said plurality of handheld electronic devices to be secured in place by the at least one fixing unit; and at least one connecting unit provided between the plurality of carrying units for making the plurality of carrying units connect to each other and keep rotatable, stay at a fixed angle, or shut relative to each other.

2. The carrying device according to claim 1, wherein the plurality of carrying units are each a hard plate.

3. The carrying device according to claim 1, wherein the at least one connecting unit is a flexible connecting part.

4. The carrying device according to claim 1, wherein the at least one connecting unit comprises at least one hinge provided at a side of each of the plurality of carrying units for making the plurality of carrying units hinge to each other.

5. (canceled)

6. The carrying device according to claim 1, wherein the at least one fixing unit comprises a plurality of clamping portions and the plurality of clamping portions are connected to the at least one adjustment portion to adjust the plurality of clamping portions for keeping the plurality of clamping portions close to and clipping one of the plurality of handheld electronic devices.

7. The carrying device according to claim 6, wherein the at least one adjustment portion comprises a tooth-shaped member and a retaining part, the tooth-shaped member is provided on the carrying unit, and the retaining part is provided in at least one of the plurality of clamping portions to be wedged into the tooth-shaped member, allowing the clamping portion to clamp and secure one of the plurality of handheld electronic devices.

8. The carrying device according to claim 7, wherein the at least one adjustment portion further comprises a guidance groove and a gliding part that are opposite to each other and the guidance groove and the gliding part are provided respectively in the plurality of carrying units and the clamping portion for allowing the plurality of carrying units and the clamping portion to glide relative to each other.

9. The carrying device according to claim 1, wherein at least one elastic fixing part is provided around the receiving space to wrap at least one portion of each of the plurality of handheld electronic devices and then fix the handheld electronic device into the plurality of carrying unit.

10. The carrying device according to claim 1, wherein each of the plurality of carrying units further comprises a mounting mouth connected to the receiving space, allowing the handheld electronic device to be mounted in the receiving space through the mounting mouth.

11. The carrying device according to claim 10, wherein at least one closing part is provided in the mounting mouth for closing part or all of the mounting mouth.

12. The carrying device according to claim 11, wherein the closing part is provided with one of a magnetic button, a lock, a retaining ring, a wedge, or a sticky button.

13. The carrying device according to claim 1, wherein the at least one connecting unit is a sectional pivot used to make the plurality of carrying units connect to or separate from each other.

14. The carrying device according to claim 1, wherein at least one of the handheld electronic devices comprises a touch display screen.

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