A protective or decorative case for an electronic device includes at least a first shell portion and a second shell portion. The first and second shell portions each comprise at least one magnetic coupling element to provide for removably coupling the shells together in an assembled configuration to house an electronic device therein.
MAGNETICALLY CONNECTED CASE FOR ELECTRONIC DEVICE

CROSS-REFERENCE TO RELATED APPLICATION


TECHNICAL FIELD

[0002] The present invention relates generally to the field of protective and decorative cases for electronic devices, and more particularly to a case having segments that magnetically connect together.

BACKGROUND

[0003] Protective and/or decorative cases, frames and supports are used in connection with electronic devices such as tablet computers, smart phones, cell phones, MP3 players and other portable music and/or video players, electronic readers, handheld game devices, and the like. Various means of mounting and coupling the case onto the electronic device are known, but continued improvements are sought. It is to the provision of a magnetically connected case for electronic devices that the present invention is primarily directed.

SUMMARY

[0004] In example embodiments, the present invention provides a magnetically connected case for electronic devices. In one aspect, the present invention relates to a case including a first shell portion and a second shell portion. The first and second shell portions each comprise at least one magnetic coupling element to provide for removably coupling the case together over the electronic device and securing the electronic device within the case. In example embodiments, the magnetic coupling allows the case to be easily installed onto the electronic device, and removed and replaced as desired, while still maintaining a reliable attachment of the case when installed on the electronic device.

[0005] In another aspect, the present invention relates to a case for an electronic device. The case includes a first shell portion having a first magnetic coupling element and a second shell portion having a second magnetic coupling element. Preferably, the first and second magnetic coupling elements releasably engage one another to retain the first and second shell portions in an assembled configuration, with the electronic device removably installed within the case.

[0006] In another aspect, the present invention relates to a two-piece mobile device case for protecting an electronic device. The case includes a first shell portion having at least one first magnetic coupling element and a second shell portion having at least one second magnetic coupling element. Preferably, the at least one first and second magnetic coupling elements releasably couple together to retain the electronic device between the first and second shell portions in an assembled configuration. Optionally, the first and/or second shell portions comprise one or more cutout portions for allowing access to or use of controls, ports or other features of the electronic device. Further optionally, one or more buttons or control actuators may be provided for operating within the cutout portions to allow for operation of the controls, ports, or other features of the electronic device while at least partially housing or covering the same.

[0007] These and other aspects, features and advantages of the invention will be understood with reference to the drawing figures and detailed description herein, and will be realized by means of the various elements and combinations particularly pointed out in the appended claims. It is to be understood that both the foregoing general description and the following brief description of the drawings and detailed description of the invention are exemplary and explanatory of preferred embodiments of the invention, and are not restrictive of the invention, as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a front perspective view of a magnetically connected case for an electronic device according to an example embodiment of the present invention.

[0009] FIG. 2 is a rear perspective view of the magnetically connected case of FIG. 1, showing a first portion of the case separated from a second portion of the case, in an open configuration for removing or installing the electronic device.

[0010] FIGS. 3A-3F are orthogonal views of the magnetically connected case of FIG. 1.

[0011] FIG. 4A-4F are orthogonal views of a magnetically connected case according to another example embodiment of the present invention.

[0012] FIGS. 5A-5F are orthogonal views of a magnetically connected case according to another example embodiment of the present invention.

DETAILED DESCRIPTION OF EXAMPLE EMBODIMENTS

[0013] The present invention may be understood more readily by reference to the following detailed description of the invention taken in connection with the accompanying drawing figures, which form a part of this disclosure. It is to be understood that this invention is not limited to the specific devices, methods, conditions or parameters described and/or shown herein, and that the terminology used herein is for the purpose of describing particular embodiments by way of example only and is not intended to be limiting of the claimed invention. Any and all patents and other publications identified in this specification are incorporated by reference as though fully set forth herein.

[0014] Also, as used in the specification including the appended claims, the singular forms “a,” “an,” and “the” include the plural, and reference to a particular numerical value includes at least that particular value, unless the context clearly dictates otherwise. Ranges may be expressed herein as from “about” or “approximately” one particular value and/or to “about” or “approximately” another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by use of the antecedent “about,” it will be understood that the particular value forms another embodiment.

[0015] With reference now to the drawing figures, wherein like reference numbers represent corresponding parts throughout the several views, FIGS. 1-13 show a magnetically connected case 10 for holding an electronic device D according to one example embodiment of the present invention. The
electronic device D may, for example, take the form of a mobile device, cell phone, smartphone, MP3 player or other portable music and/or video player, electronic reader, tablet computer, handheld game device, or the like. The case 10 is removably mounted or attached onto the electronic device D over the standard external housing of the electronic device as provided by the electronic device’s manufacturer, or viewed alternatively the electronic device is removably mounted or installed within the case.

[0016] In example forms, the magnetically connected case 10 generally comprises a mobile device case, for example a two-piece case with a first shell portion 20 and a second shell portion 30. In one example form, the magnetically connected case 10 comprises a top/bottom split configuration wherein a first shell portion 20 and a second shell portion 30 can combine and couple with one another (e.g., magnetically) to form the overall case 10 and retain a phone or other electronic device within the case. In example embodiments, the first shell portion 20 (e.g., top portion) comprises at least one first magnetic coupling element 40 and the second shell portion 30 (e.g., bottom portion) comprises at least one second magnetic coupling element 42. Generally, the first magnetic coupling elements 40 and the second magnetic coupling elements 42 are oriented with magnetically attractive contact surfaces aligned and confronting one another in the assembled state of the case so that attraction between the first and second magnetic coupling elements provides for removably coupling the case together. As depicted in FIGS. 1-2, an electronic device D is substantially housed within the first and second shell portions 20, 30 when the case is assembled. The first shell portion 20 substantially covers a top portion of the electronic device D and the second shell portion 30 substantially covers a bottom portion of the electronic device D, along at least a portion of the back and sides of the device. Thus, when assembled with the first and second magnetic coupling elements releasably coupling the first and second shell portions 20, 30 together, an internal chamber 45 defined therebetween is adapted to house the electronic device D. In alternate embodiments, the case can comprise three or more shell portions, at least two of which are magnetically coupled to one another. One or more non-magnetic coupling means such as snap connections, clips, fasteners or mechanical couplings can optionally be provided in addition to or instead of one or more of the magnetic couplings between shell portions, and/or between shell portion(s) and the electronic device, for example to provide improved case connection integrity and/or retention on the electronic device.

[0017] In example forms, the case 10 comprises a total of eight magnetic coupling elements wherein four first magnetic coupling elements 40 are connected to the first shell portion 20 and four second magnetic coupling elements 42 are connected to the second shell portion 30, with the first and second magnetic coupling elements arranged in confronting attractive pairs. For example, as depicted in FIGS. 3A-C, each first magnetic coupling element 40 is generally positioned and aligned to correspond with an opposed second magnetic coupling element 42 on the other shell portion of the case 10.

[0018] The magnetic coupling elements can be arranged in various configurations. In one form, the magnetic coupling elements 40, 42 are micro-magnets seated within pockets formed along the periphery (or generally adjacent thereto) of the connecting ends or interface of the shell portions 20, 30 wherein an adhesive or glue is used to ensure each magnetic coupling element remains within its respective pocket. Optionally, other forms of magnetic coupling elements and/or other modes of attaching the magnetic coupling elements to or in the shell portions 20, 30 can be utilized. For example, the magnetic coupling elements 40, 42 can comprise pairs of permanent magnets of opposite polarity, or alternatively can comprise pairs of one magnet and one magnetically attracted element such as an iron or other ferrous material arranged to releasably engage one another. Optionally, the polarities of magnets installed on the respective shell portions can be oriented to attract and couple in a desired or correct assembly configuration of the shell portions, and to repel or prevent coupling in incorrect assembly configurations.

[0019] Optionally, the first and/or second shell portions 20, 30 of the case 10 can comprise one or more openings or cutouts 50 for alignment with a camera, flash unit, controls, ports, and/or other features of the electronics device D to which the case 10 is configured for use. Further optionally, one or more button actuators or insert covers 54 can be provided for operating within the openings (or other portions of the first and/or second shell portions 20, 30) to allow for operation of the controls, ports, or other features of the electronic device while at least partially housing or covering the same. In one example form, the inserts 54 releasably couple to the openings and permit at least some movement thereof while remaining releasably coupled thereto.

[0020] FIG. 4 shows a magnetically connected case 100 according to another example embodiment of the present invention. In general, the case 100 is substantially similar to the case 10 as described above. In example embodiments, the case 100 comprises a left/right split configuration wherein a first shell portion 120 (e.g., right portion) and a second shell portion 130 (e.g., left portion) combine and couple with one another (e.g., magnetically) to form the overall case 100. That is, the first shell portion 120 can engage a right half of the electronic device and the second shell portion 130 can engage the left half of the electronic device. As depicted, the case 100 comprises a total of four magnetic coupling elements 140, 142, wherein first magnetic coupling elements 140 are connected and seated within pockets formed in the first shell portion 120 and second magnetic coupling elements 142 are connected and seated within pockets formed in the second shell portion 130.

[0021] Similarly, the magnetic coupling elements of the case 100 can be arranged in various configurations. For example, the magnetic coupling elements 140, 142 can be micro-magnets that are seated within pockets formed along the periphery (or generally adjacent thereto) of the connecting ends of the shell portions 120, 130 wherein an adhesive or glue is used to ensure each magnetic coupling element remains within its respective pocket. Optionally, other forms of magnetic coupling elements and/or other modes of attaching the magnetic coupling elements to or in the shell portions 120, 130 can be utilized. For example, the magnetic coupling elements 140, 142 can comprise pairs of permanent magnets of opposite polarity, or alternatively can comprise pairs of one magnet and one magnetically attracted element such as an iron or other ferrous material arranged to releasably engage one another.

[0022] FIG. 5 shows a magnetically connected case 200 according to yet another example embodiment of the present invention. In general, the case 200 is substantially similar to the cases 10 and 100 as described above. In example embodiments, the case 200 comprises a front/back split configuration wherein a first shell portion 220 (e.g., front portion) and a
second shell portion 230 (e.g., back portion) combine and couple with one another (e.g., magnetically) to form the overall case 200. That is, the first shell portion 220 can engage a front side of the electronic device and the second shell portion 230 can engage the back half of the electronic device. As depicted, the case 200 comprises a total of eight magnetic coupling elements 240, 242 wherein four first magnetic coupling elements 240 are connected and seated within pockets formed in the first shell portion 220 and four second magnetic coupling elements 242 are connected and seated within pockets formed in the second shell portion 230.

Similarly, the magnetic coupling elements of the case 200 can be arranged in various configurations. For example, the magnetic coupling elements 240, 242 can be micro-magnets that are seated within pockets formed along the periphery (or generally adjacent thereto) of the connecting ends of the shell portions 220, 230 wherein an adhesive or glue is used to ensure each magnetic coupling element remains within its respective pocket. Optionally, other forms of magnetic coupling elements and/or other modes of attaching the magnetic coupling elements to or in the shell portions 220, 230 can be utilized. For example, the magnetic coupling elements 240, 242 can comprise pairs of permanent magnets of opposite polarity, or alternatively can comprise pairs of one magnet and one magnetically attracted element such as an iron or other ferrous material arranged to releasably engage one another.

In various example embodiments, the case of the present invention can be fabricated from plastics, metals, wood, composites, and/or any other suitable material(s) of construction. In example forms, the material of the case body is non-magnetic. The case can be sized and shaped to receive various sizes and formats of electronic devices, including without limitation tablet computers, smart phones, cell phones, MP3 players and other portable music and/or video players, electronic readers, handheld game devices, and the like.

While the invention has been described with reference to preferred and example embodiments, it will be understood by those skilled in the art that a variety of modifications, additions and deletions are within the scope of the invention, as defined by the following claims.

What is claimed is:

1. A case for an electronic device comprising:
   a first shell portion comprising a first magnetic coupling element; and
   a second shell portion comprising a second magnetic coupling element,
   wherein the first and second magnetic coupling elements releasably engage one another to retain the first and second shell portions in an assembled configuration.

2. The case of claim 1, wherein the first and second shell portions define an interface therebetween, and wherein the first and second magnetic coupling elements are aligned across the interface.

3. The case of claim 1, wherein the first and second shell portions comprise a magnet and the second magnetic coupling element comprises a magnetically attracted material.

4. The case of claim 1, wherein the first and second magnetic coupling elements both comprise magnets, and wherein the magnets are aligned with opposite polarities facing one another in the assembled configuration.

5. The case of claim 1, wherein the first and second shell portions define an interface therebetween, and wherein the first and second magnetic coupling elements are aligned across the interface.

6. The case of claim 5, comprising at least two aligned pairs of first and second magnetic coupling elements aligned across the interface from one another.

7. The case of claim 1, wherein the case comprises a top/bottom split configuration, the first shell portion comprising a top portion and the second shell portion comprising a bottom portion.

8. The case of claim 1, wherein the case comprises a right/left split configuration, the first shell portion comprising a right portion and the second shell portion comprising a left portion.

9. The case of claim 1, wherein the case comprises a front/back split configuration, the first shell portion comprising a front portion and the second shell portion comprising a back portion.

10. A two-piece mobile device case for protecting an electronic device, wherein the case comprises a first shell portion having at least one first magnetic coupling element and a second shell portion having at least one second magnetic coupling element, wherein the at least one first and second magnetic coupling elements releasably couple together to retain the electronic device between the first and second shell portions in an assembled configuration.

11. The two-piece mobile device case of claim 10, wherein an internal compartment is defined between the first and second shell portions, and wherein the internal compartment is adapted to house the electronic device in the assembled configuration.

12. The two-piece mobile device case of claim 10, wherein the at least one first magnetic coupling element comprises a magnet and the at least one second magnetic coupling element comprises a magnetically attracted material.

13. The two-piece mobile device case of claim 10, wherein the at least one first and second magnetic coupling elements both comprise magnets, and wherein the magnets are aligned with opposite polarities facing one another in the assembled configuration.

14. The two-piece mobile device case of claim 10, wherein the first and second shell portions define an interface therebetween, and wherein the at least one first and second magnetic coupling elements are aligned across the interface.

15. The two-piece mobile device case of claim 14, comprising at least two aligned pairs of first and second magnetic coupling elements aligned across the interface from one another.

16. The two-piece mobile device case of claim 10, wherein the first and/or second shell portions comprises one or more cutout portions for allowing access to or use of controls, ports or other features of the electronic device.

17. The two-piece mobile device case of claim 16, further comprising one or more buttons for operating within the cutout portions to allow for operation of the controls, ports, or other features of the electronic device while at least partially housing or covering the same.

18. The two-piece mobile device case of claim 10, wherein the case comprises a top/bottom split configuration, the first shell portion comprising a top portion and the second shell portion comprising a bottom portion.

19. The two-piece mobile device case of claim 10, wherein the case comprises a right/left split configuration, the first
shell portion comprising a right portion and the second shell portion comprising a left portion.

20. The two-piece mobile device case of claim 10, wherein the case comprises a front/back split configuration, the first shell portion comprising a front portion and the second shell portion comprising a back portion.