ABSTRACT

A box includes a compartment for receiving a memory card device having a positioning groove. A retaining member is pivotally mounted in the box and includes a first end exposed outside the box for operation. The retaining member further includes a second end engaging with the positioning groove of the memory card device to retain the memory card device in the compartment. The first end of the retaining member is operable to disengage the second end of the retaining member from the positioning groove of the memory card device.
BOX FOR RECEIVING MEMORY CARD DEVICE

BACKGROUND OF THE INVENTION

[0001] Field of the Invention
[0002] The present invention relates to a box and more particularly, to a box for receiving a memory card device.
[0003] Description of the Related Art
[0004] Electronic cards are widely used in computers and electronic dictionaries for expanding memories, network cards, modems, and small computer system interfaces (SCSI) such as high-capacity hard disks, scanners, etc. In addition to personal computer memory card international association (PCMCIA) card, electronic cards include multi-media cards (MMC), compact flash cards (CF), smart media cards (SMC), memory sticks (MS), secure digital memory cards (SD) for use in personal digital assistants (PDA), portable electronic dictionaries, digital cameras, etc.
[0005] However, most memory cards have an interface of a specific specification and thus cannot be used with the connection interface of widely used USB (universal serial bus) specification. A currently available dual-interface memory card includes a USB interface and a read/write interface. A user may either couple the USB interface with a USB socket of an electronic device or couple the read/write interface with a read/write interface socket for access to read/write data. Further, such a dual-interface memory card can be converted into a memory card of another type by coupling the read/write interface with an adapter.
[0006] The memory card and the adapter can be received in a box for storage and easy carriage. However, the memory card and the adapter cannot be received in the box in an easy, convenient manner. Further, the memory card and the adapter are liable to disengage from the box due to external force or shock. Thus, the memory card and the adapter might be damaged or even lost.

SUMMARY OF THE INVENTION

[0007] A box in accordance with the present invention comprises a compartment for receiving a memory card device having a positioning groove. A retaining member is pivotally mounted in the box and includes a first end exposed outside the box for operation. The retaining member further includes a second end engaging with the positioning groove of the memory card device to retain the memory card device in the compartment. The first end of the retaining member is operable to disengage the second end of the retaining member from the positioning groove of the memory card device.
[0008] Preferably, a mounting space is defined between a perimeter wall defining the compartment and a side of the box. The retaining member is pivotally mounted in the mounting space.
[0009] Preferably, the side of the box includes an opening through which the first end of the retaining member extends outside the box.
[0010] Preferably, the second end of the retaining member includes a hook for engaging with the positioning groove of the memory card device.
[0011] Preferably, the perimeter wall defining the compartment includes a slot through which the hook of the retaining member extends into the positioning groove of the memory card device.
[0012] Preferably, the hook is disengaged from the positioning groove of the memory card device when the first end of the retaining member is pressed.
[0013] Preferably, the retaining member includes a pivot hole, and the box includes a pivot extending through the pivot hole.
[0014] Preferably, the box further includes means for biasing the first end of the retaining member into the positioning groove of the memory card device.
[0015] In an example, the means for biasing includes a resilient member. The resilient member includes a first end integral with the retaining member and a movable second end pressing against the box. The first end of the resilient member extends from the second end of the retaining member, and the second end of the resilient member movably presses against an extension extending from a perimeter wall of the box.
[0016] Preferably, the box includes a body and a lid coupled to the body.
[0017] The memory card device may be a memory card including a positioning groove in a side thereof.
[0018] Alternatively, the memory card device is an adapter including a positioning groove in a side thereof. A memory card is removably received in the adapter.
[0019] Other objectives, advantages, and features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] FIG. 1 is a perspective view of a box for receiving a memory card device in accordance with the present invention, wherein a dual-interface memory card and an adapter are received in the box.
[0021] FIG. 2 is an elevation of the box in FIG. 1, wherein a lid of the box is removed.
[0022] FIG. 3 is a view similar to FIG. 2, wherein the memory card is removed from the box.
[0023] FIG. 4 is a perspective view showing the other side of the memory card in FIG. 2.
[0024] FIG. 5 is a view similar to FIG. 2, illustrating receiving of a single-interface memory card in the box.
[0025] FIG. 6 is a perspective view of the box, wherein the memory card and the adapter are removed from the box.
[0026] FIG. 7 is a perspective view of the box in FIG. 6, wherein a retaining member is removed from the box.
[0027] FIG. 8 is a perspective view of the retaining member.
[0028] FIG. 9 is a bottom perspective view of the lid of the box in accordance with the present invention.
[0029] FIG. 10 is a partially engaged view of FIG. 2, illustrating operation of the retaining member.
[0030] FIG. 11 is a perspective view illustrating another embodiment of the box in accordance with the present invention, wherein three memory cards and two adaptors are received in the box.
[0031] FIG. 12 is an elevation of the box in FIG. 11, wherein a lid is removed from the box.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0032] A box in accordance with the present invention can be used to receive a memory card device. The term “memory
card device” used herein means at least one memory card and/or at least one adaptor. The memory card may be a dual-interface memory card 30 shown in FIGS. 1 through 4 or a single-interface memory card 31 shown in FIG. 5.

[0033] Referring to FIGS. 1 and 2, an end of the box 10 includes an opening or slot 13a through which the memory card device is inserted into a compartment 13 defined in the box 10. An opening 15 (see FIGS. 7 and 9) is defined in a perimeter wall defining the compartment 13. A mounting space (not labeled) is defined between this perimeter wall and a side of the box 10. The side of the box 20 includes a slot 14. In this example, the box 10 includes a body 12 and a lid 11 coupled with the body 12 via a plurality of hooks 17 and engaging notches 18, as shown in FIGS. 7 and 9. A through-hole 19 is defined in a corner of the box 10 for mounting a key ring (not labeled).

[0034] A retaining member 20 is pivotally mounted in the mounting space of the box 10 by a pivot 16 (see FIGS. 5-7) that is formed in the box 10 and that extends through a pivot hole 23 in an intermediate portion of the retaining member 20. The retaining member 20 includes a first end 21 extending outside the box 10 via the slot 14 (see FIGS. 7 and 9) for manual operation. The retaining member 20 further includes a second end (not labeled) with a hook 22 extending through the opening 15 into the compartment 13 of the box 10. A resilient member 24 biases the hook 22 of the retaining member 20 into the compartment 13 via the opening 15. Referring to FIG. 6, in this example, the resilient member 24 has an end 25 integral with the second end of the retaining member 20. The movable end 26 of the resilient member 24 presses against an extension extending inward from a perimeter wall of the box 10. Referring to FIGS. 6 and 8, a stop 27 is provided on the first end 21 of the resilient member 24. The stop 27 presses against an inner wall of the box 10 to control the position of the first end 21 of the retaining member 20.

[0035] In the example shown in FIG. 2, a dual-interface memory card 30 is received in an adapter 34, which, in turn, is received in the compartment 13 of the box 10. Referring to FIG. 4, the memory card 30 includes a USB interface 36 and a read/write interface 37. The memory card 30 can be removed from the adapter 34 for use (see FIG. 3). More specifically, the USB interface 36 of the memory card 30 can be coupled with a USB socket (not shown) for data saving/reading operations. Alternatively, the memory card 30 and the adapter 34 can be together removed from the box 10 for use. More specifically, the memory card 30 is converted into, e.g., an SD card, an MS card, or a memory card of another type by mounting the memory card 30 with a read/write interface 37 in the adapter 30.

[0036] The adapter 34 includes a positioning groove 38 in a side thereof. When the adapter 34 is received in the compartment 13 of the box 10, the positioning notch 38 is aligned with the opening 15 of the box 10. Referring to FIG. 2, the hook 22 of the retaining member 20 is biased by the resilient member 24 into the positioning groove 38 of the adapter 34. Thus, the memory card 30 and the adapter 34 are reliably retained in place in the compartment 13 of the box 10. With reference to FIG. 10, the first end 21 of the retaining member 20 can be pressed to disengage the hook 22 from the positioning groove 38 of the adapter 34, allowing removal of the adapter 34 from the box 10. When the adapter 34 is reinserted into the compartment 13 of the box 10, the hook 22 is pushed outward and then-returns to engage with the positioning groove 38 of the adapter 34 under the action of the resilient member 24.

[0037] Referring to FIG. 5, the memory card may be a single-interface memory card 31 having a positioning groove 39 to allow reliable positioning in the compartment 13 of the box 10 in a manner similar to the example shown in FIG. 2.

[0038] FIGS. 11 and 12 illustrate another example of the invention. In this example, the box (now designated by 101) includes a plurality of compartments 131, 132, and 133 for respectively receiving, e.g., a memory card 30 and its SD adapter 34, a memory card 32 and its MS adapter 35, and another memory card 33. It is noted that corresponding elements and structures are provided for allowing reliable positioning of the respective memory cards 30, 32, and 33 and associated adapters 34 and 35.

[0039] As apparent from the foregoing, the box 10, 101 in accordance with the present invention is capable of reliably retaining a memory card device in place without the risk of undesired disengagement of the memory card device due to external force or shock.

[0040] Although specific embodiments have been illustrated and described, numerous modifications and variations are still possible. The scope of the invention is limited by the accompanying claims.

What is claimed is:

1. A box for receiving a memory card device, the box comprising a compartment for receiving a memory card device having a positioning groove, a retaining member being pivotally mounted in the box and including a first end exposed outside the box for operation, the retaining member further including a second end engaging with the positioning groove of the memory card device to retain the memory card device in the compartment, the first end of the retaining member being operable to disengage the second end of the retaining member from the positioning groove of the memory card device.

2. The box for receiving a memory card device as claimed in claim 1 wherein a mounting space is defined between a perimeter wall defining the compartment and a side of the box, the retaining member being pivotally mounted in the mounting space.

3. The box for receiving a memory card device as claimed in claim 2 wherein the side of the box includes an opening through which the first end of the retaining member extends outside the box.

4. The box for receiving a memory card device as claimed in claim 3 wherein the second end of the retaining member includes a hook for engaging with the positioning groove of the memory card device.

5. The box for receiving a memory card device as claimed in claim 4 wherein the perimeter wall defining the compartment includes a slot through which the hook of the retaining member extends into the positioning groove of the memory card device.

6. The box for receiving a memory card device as claimed in claim 5 wherein the hook is disengaged from the positioning groove of the memory card device when the first end of the retaining member is pressed.

7. The box for receiving a memory card device as claimed in claim 6 wherein the retaining member includes a pivot hole, the box including a pivot extending through the pivot hole.
8. The box for receiving a memory card device as claimed in claim 1 further including means for biasing the first end of the retaining member into the positioning groove of the memory card device.

9. The box for receiving a memory card device as claimed in claim 8 wherein said means for biasing includes a resilient member.

10. The box for receiving a memory card device as claimed in claim 9 wherein the resilient member includes a first end integral with the retaining member and a movable second end pressing against the box.

11. The box for receiving a memory card device as claimed in claim 10 wherein the first end of the resilient member extends from the second end of the retaining member, and wherein the second end of the resilient member movably presses against an extension extending from a perimeter wall of the box.

12. The box for receiving a memory card device as claimed in claim 1 wherein the box includes a body and a lid coupled to the body.

13. The box for receiving a memory card device as claimed in claim 1 wherein the memory card device is a memory card including a positioning groove in a side thereof.

14. The box for receiving a memory card device as claimed in claim 14 wherein the memory card device further includes a memory card removably received in the adapter.

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