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(54) PROTECTIVE APPARATUS FOR TABLET ELECTRONIC DEVICE

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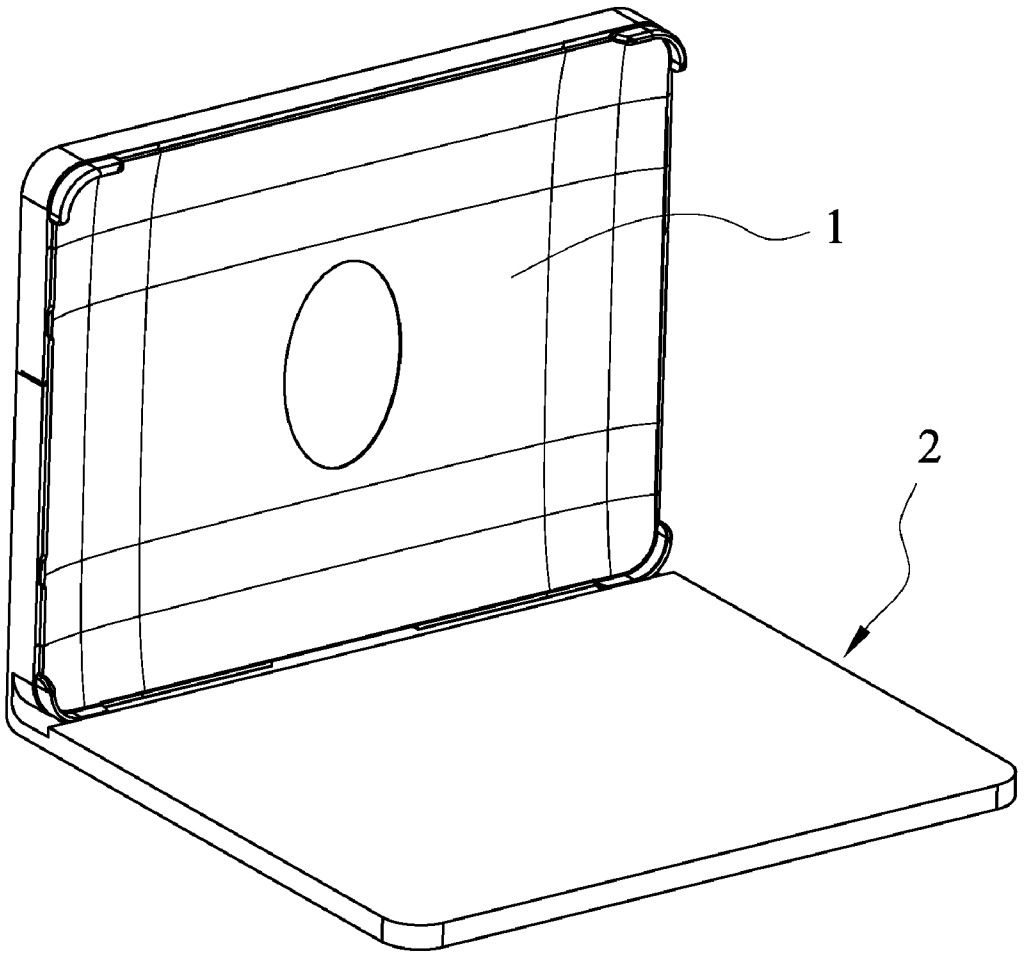
(57) **ABSTRACT**

A protective apparatus for tablet electronic device is provided, in a form of book jacket-like expandable structure, including a receiving unit and a protective cover. The protective cover is a foldable plate set. The plate set can be folded to shape into a three-dimensional U-shape. The element at the edge of the plate set is a first plate element, with a buckle seat. The front surface of the receiving unit can receive a tablet electronic device, and the back surface has formed a protruding element so that the protruding element of the receiving unit can be buckled to the buckle seat of the plate set. The receiving unit can rotate pivotedly around the buckle seat for angle adjustment. With this, the tablet electronic device can be wrapped and protected. The plate set can be folded to support at the back surface of the receiving unit so that the receiving unit can stand in landscape and portrait mode with a tilt angle.



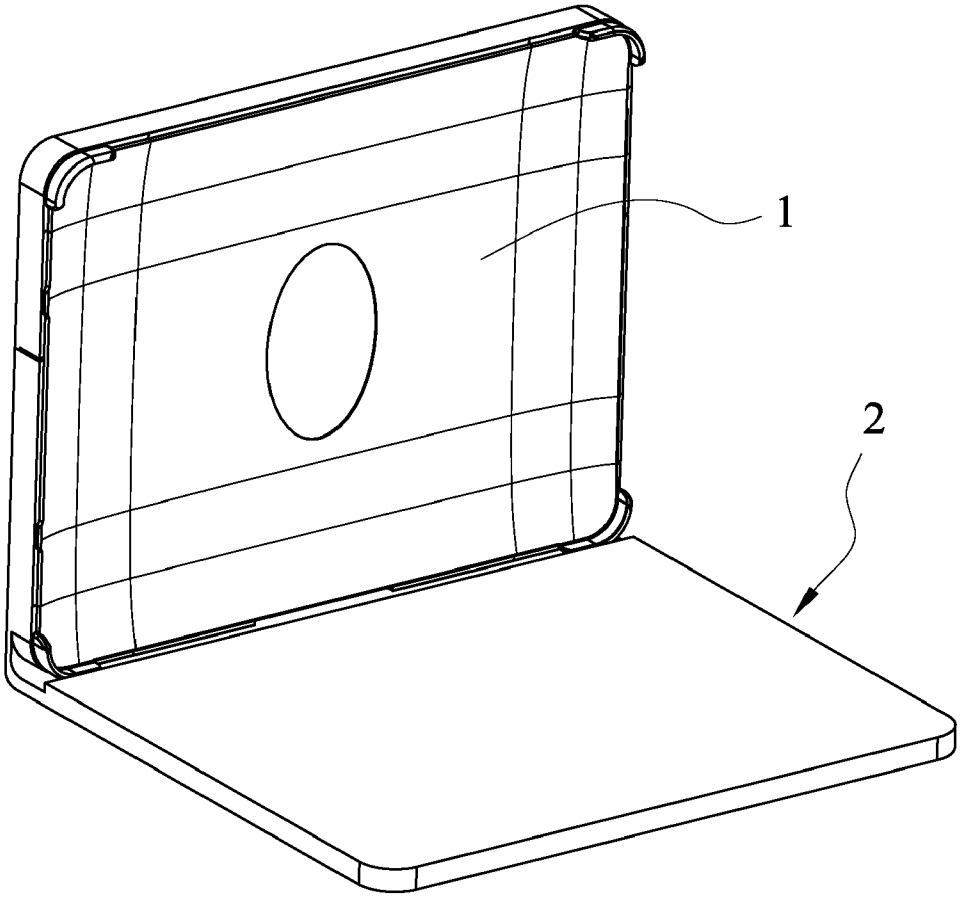


FIG. 1

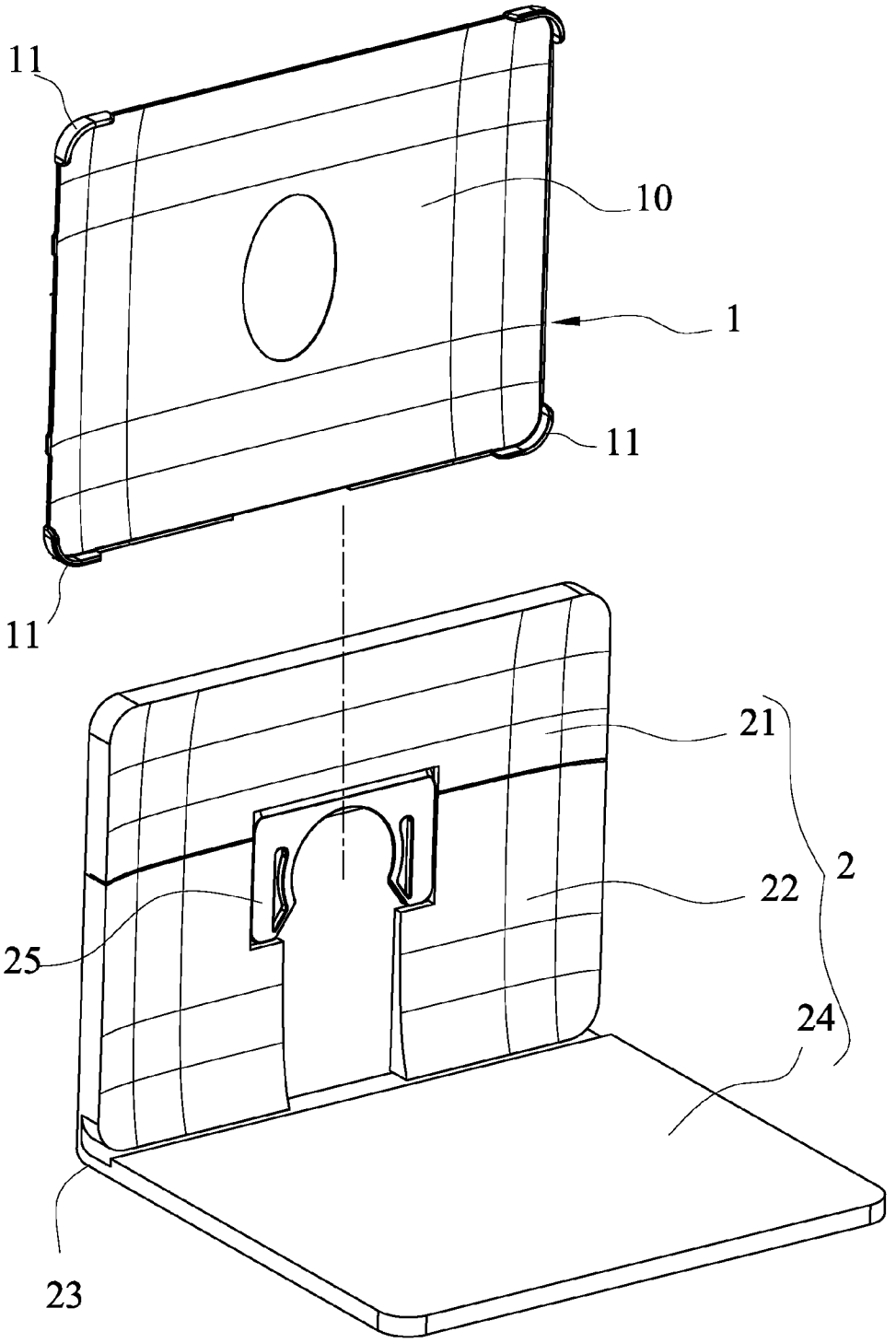


FIG. 2

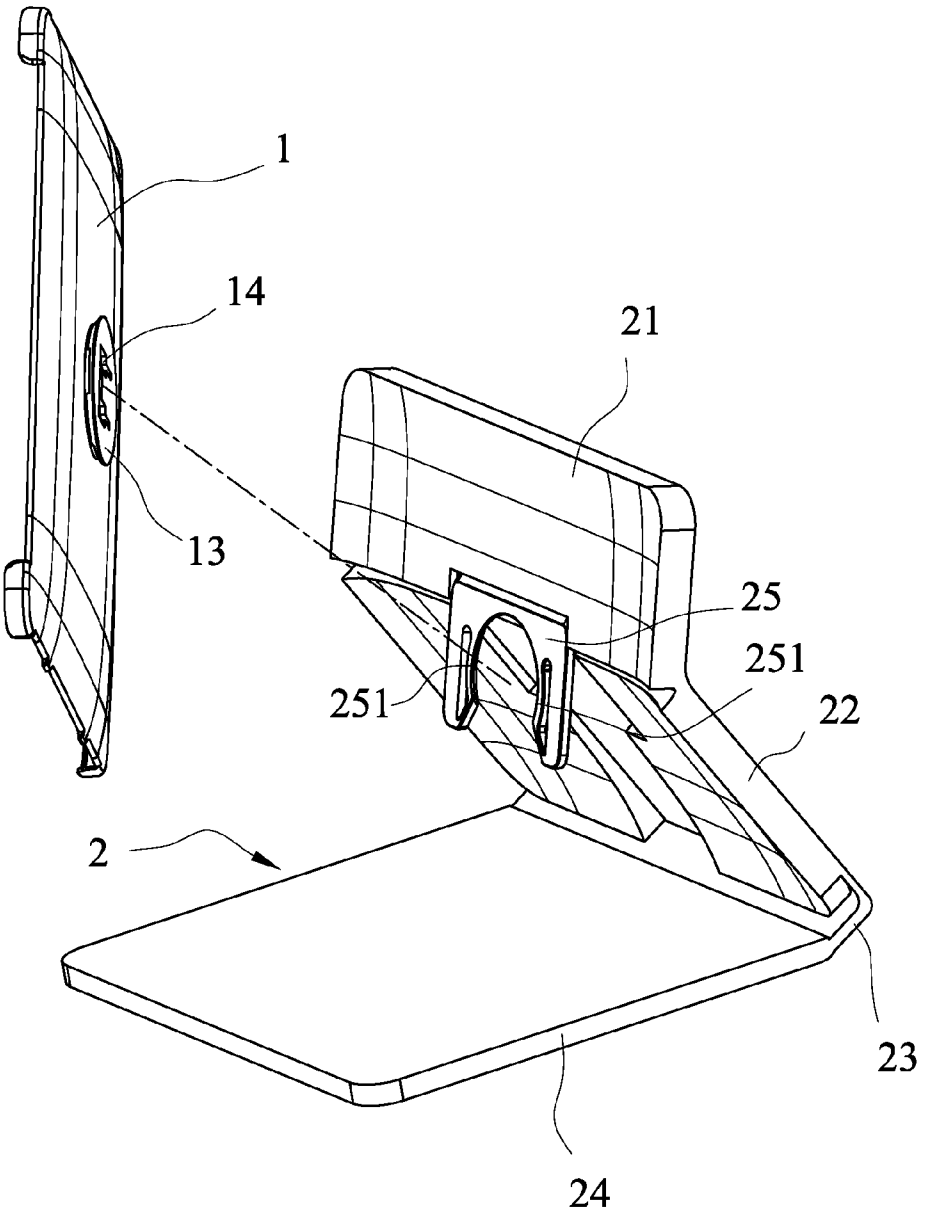


FIG. 3

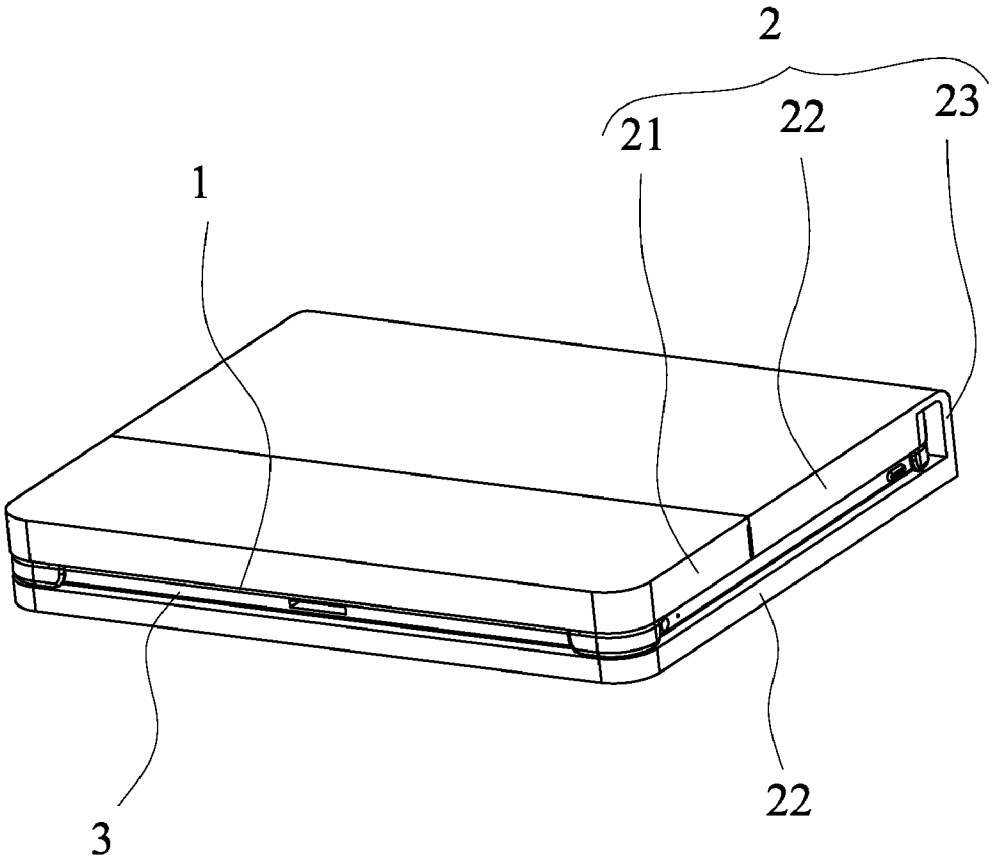


FIG. 4

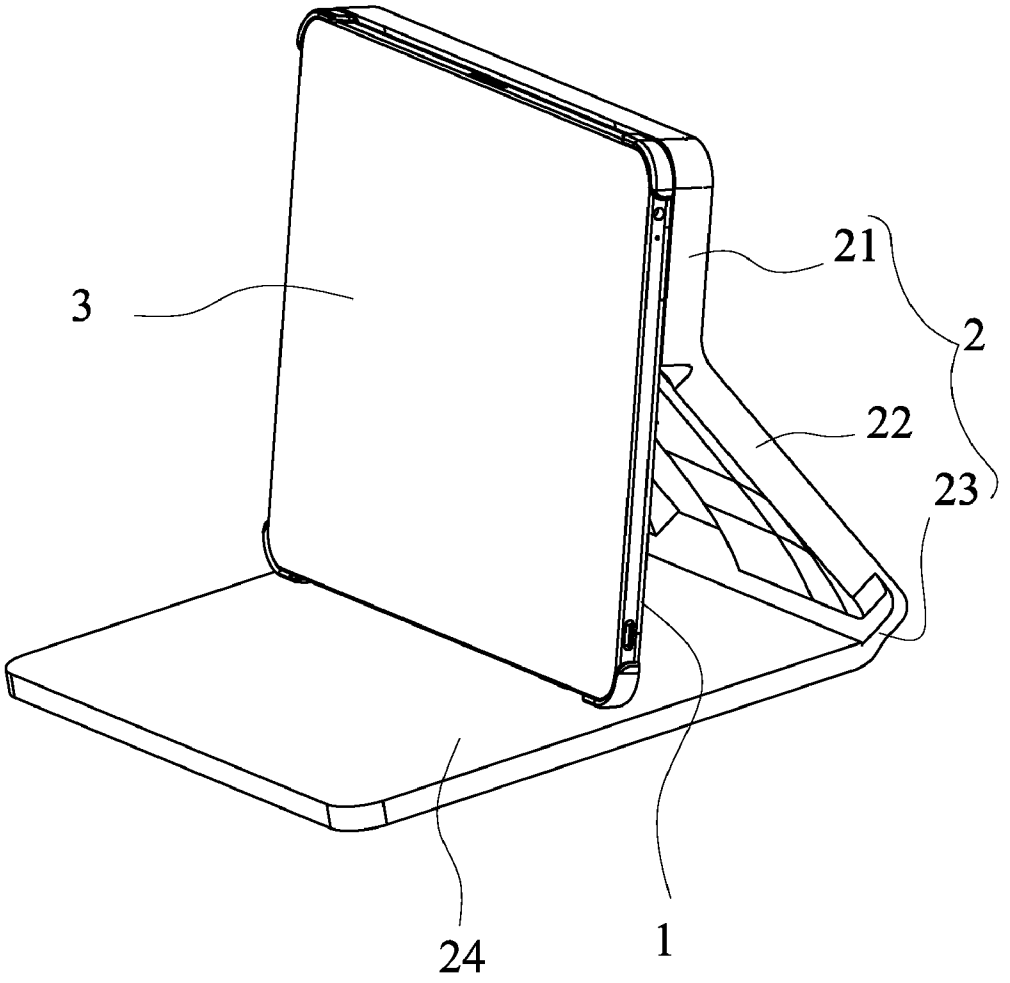


FIG. 5

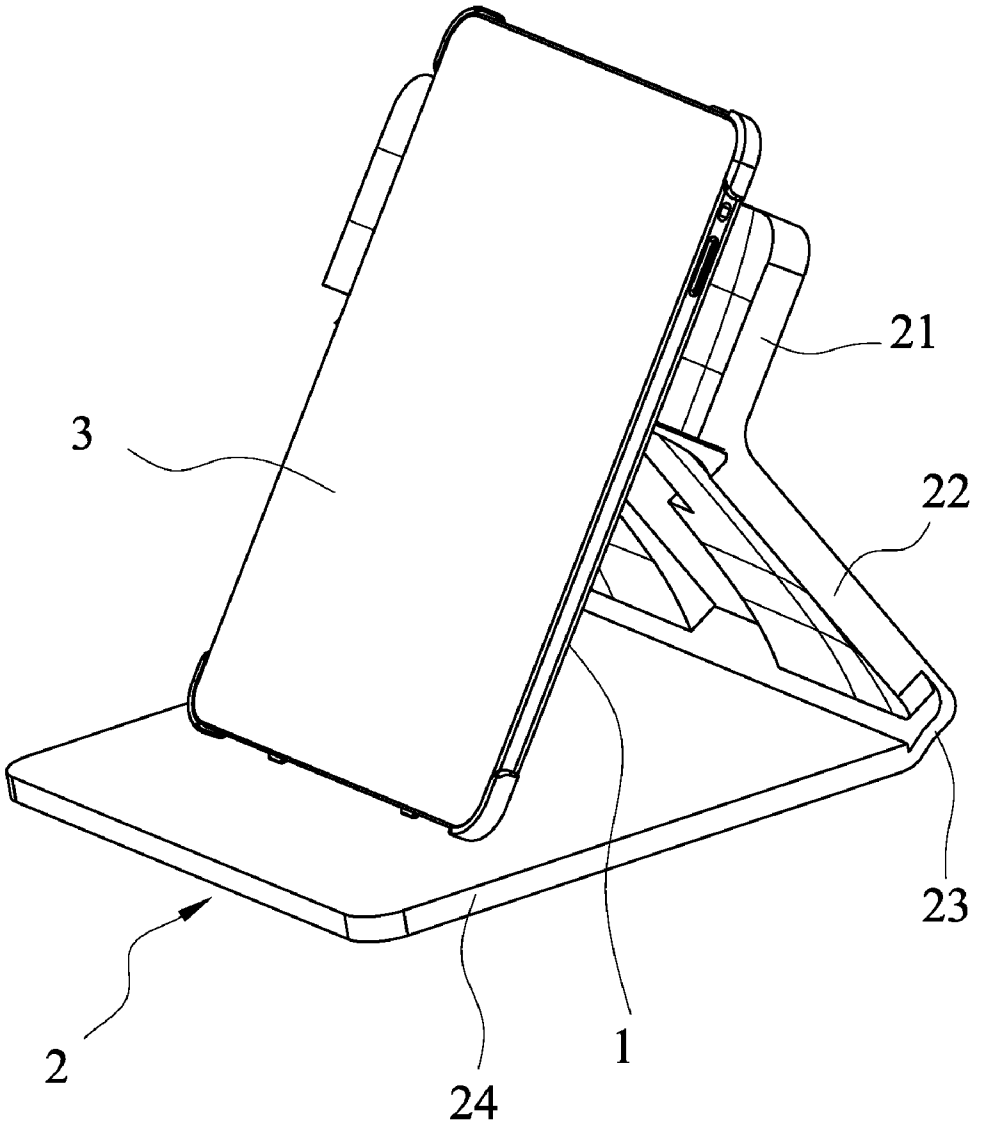


FIG. 6

PROTECTIVE APPARATUS FOR TABLET ELECTRONIC DEVICE

FIELD OF THE INVENTION

[0001] The present invention generally relates to a protective apparatus, and more specifically to a protective apparatus for tablet electronic device, such as, tablet PC, ebook, so as to protect the surfaces of the electronic devices when device not being in use as well providing convenience of operation or viewing when the device being in use.

BACKGROUND OF THE INVENTION

[0002] Tablet electronic devices, such as tablet PC, are popular recently because the maturity of touch panel technology and a wide range of applications are developed to facilitate convenient use of tablet PC. Electronic readers, or commonly called as ebooks, utilize the new display technology to avoid eye stress for long time reading and a large storage capacity to store a large number of book contents for the reader to choose from. As the unit price of this type of product is still relative high, the user often handle the product with extra caution in operating and is willing to purchase protective apparatus to prevent the tablet electronic device from casual damage.

[0003] In addition to prevent the surface of the electronic device from being scratched, a good protective apparatus must also take the convenience of operation of the electronic device into account. For touch panel operation, the table electronic device, such as tablet PC, the user usually holds the tablet electronic device in one hand, while uses the other hand to operate the touch screen. However, for long period of video viewing, the user will find it difficult to hold the tablet electronic device for a long duration without any auxiliary apparatus to assist. In addition, some tablet PC allows the user to select to view in either landscape or portrait mode. The conventional protective apparatus usually provide a single mode usage. Hence, it is imperative to devise a protective apparatus to provide good protection to the tablet electronic device as well as provide convenient use.

SUMMARY OF THE INVENTION

[0004] The primary object of the present invention is to provide a protective apparatus for tablet electronic device, in a form of a book jacket-like expandable structure. The electronic device can be situated inside the protective apparatus and the circumference of the electronic device is wrapped and protected. When the structure is opened and expanded, the operation on the touch screen of the electronic device can be easily performed. For video viewing, the protective apparatus can be partially folded to stand in landscape (i.e., horizontal) and portrait (i.e., vertical) mode with a tilt angle to facilitate comfortable viewing.

[0005] Another object of the present invention is to provide a protective apparatus for tablet electronic device for a wide range of applications. The protective apparatus includes a receiving unit and a protective cover. The receiving unit is to receive and fasten the tablet electronic device. The receiving unit is buckled to the protective cover so that the electronic device is well protected. The receiving unit can be also fastened to other auxiliary apparatus so that he electronic device can be placed inside a vehicle or hanged on the wall for a wide range of applications.

[0006] To achieve the aforementioned objects, the present invention provides a protective apparatus, including a receiving unit and a protective cover. The protective cover is a foldable plate set. The plate set can be folded to shaped into a three-dimensional U-shape. The element at the edge of the plate set is a first plate element, with a buckle seat. The front surface of the receiving unit can receive a tablet electronic device, and the back surface has formed a protruding element so that the protruding element of the receiving unit can be buckled to the buckle seat of the plate set. The receiving unit can rotate pivotedly around the buckle seat for angle adjustment. The plate set can be folded to support at the back surface of the receiving unit so that the receiving unit can stand in landscape and portrait mode with a tilt angle.

[0007] The foregoing and other objects, features, aspects and advantages of the present invention will become better understood from a careful reading of a detailed description provided herein below with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The present invention can be understood in more detail by reading the subsequent detailed description in conjunction with the examples and references made to the accompanying drawings, wherein:

[0009] FIG. **1** shows a schematic view of the present invention;

[0010] FIG. **2** shows a dissected view of the present invention;

[0011] FIG. **3** shows a dissected view of another state of the present invention;

[0012] FIG. **4** shows a schematic view of the electronic device under protection according to the present invention;

[0013] FIG. **5** shows a schematic view of the electronic device standing in landscape mode according to the present invention; and

[0014] FIG. **6** shows a schematic view of the electronic dveice standing in portrait mode according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] FIG. **1** and FIG. **2** show a schematic and dissected view of the present invention respectively. The protective apparatus for tablet electronic device of the present invention includes a receiving unit **1** and a protective cover **2**. Receiving unit **1** is to clap or fasten the electronic device, and protective cover **2** is a foldable plate set. Protective cover **2** can be folded into a three-dimensional U-shape. To use the protective apparatus, receiving unit **1** is buckled to protective cover **2** so that the electronic device is wrapped by protective cover **2** for protective.

[0016] The following describes the details of each element of the structure.

[0017] The front surface of receiving unit **1** includes a large area plate surface **10**. The edge of plate surface **10** is slightly curvy inwards so that the edge of receiving unit **1** ahs the resilience to be slightly push-open. In addition, the circumference of plate surface **10** forms a plurality of clappers **11**, protruding from the level of plate surface **10**. Plate surface **10** is the place for placing the electronic device, such as tablet PC. Clappers **11** are to clap the circumference of the electronic device. When electronic device is placed on plate surface **10**, receiving unit **1** is slightly pushed-open and the resilience will allow clappers **11** to clap on the sides of the tablet PC to fasten the tablet PC. In the present embodiment, clappers **11** have a curvy shape and are located at the four corners of receiving unit **1**. However, the number and the shape of clappers are not limited to the present embodiment.

For example, the number of the clappers can be three, with one on each side of receiving unit **1** so that the tablet PC can be clapped on three sides.

[0018] As shown in FIG. **3**, f the back surface of receiving unit **1** forms a protruding element **13** at the central area. Protruding element **13** is shaped as a cone. In other words, the diameter of protruding element **13** is the smallest at the joint with main body of receiving unit **1**, and the diameter increases outwards. Also, protruding element **13** forms at least a slot **14**, shaped to match other auxiliary apparatuses so that receiving unit **1** of the present invention can also be installed at other auxiliary apparatuses in addition to protective cover **2**.

[0019] Protective cover **2** is a foldable plate set. When unfolded, protective cover **2** is a large area rectangular plate. Protective cover **2** can be folded into a three-dimensional U-shape. In the present embodiment, protective cover includes a first plate **21**, a second plate **22**, a third plate **23** and a fourth plate **24**, connected in the above order, and foldable at the junction. The total area of first plate **21** and second plate **22** is similar to the area of fourth plate **24**. Third plate **23** is smaller in size. When the plate set is folded into a three-dimensional U-shape, third plate **23** is the bottom side of the U. Other than plate-shape, third plate **23** can also be a flexible connecting element to enable folding of the remaining plates. To protect the electronic device, the inner wall of fourth plate **24** can be made of soft material, such as, cloth, foam, to avoid abrasion to the electronic device.

[0020] Furthermore, first plate **21** includes a buckle seat **25**, partially extending to second plate **22**. When the junction of first plate **21** and second plate **22** is folded, buckle seat **25** is lifted from the level of second plate **22**. Buckle seat **25** is shaped as C clip. The vertical size of the trench is narrow at the top and wide at the bottom, that is, as a cone trench. Protruding element **13** of receiving unit **1** matches the shape of buckle seat **25** so that protruding element **13** can be placed from the opening of the radius direction of buckle seat **25**, and cannot slip from buckle seat **25** from the axis direction once placed inside. Buckle seat **25** further includes resilient clip **251** to enhance the tight holding when clipping. In addition, receiving unit **1** can pivotedly rotate around the joint of protruding element **13** and buckle seat **25** when budded.

[0021] To use the present invention, electronic device **3** is fastened to receiving unit **1** and receiving unit **1** is buckled to protective cover **2**. As shown in FIG. **4**, when protective cover **2** is folded into a U-shape, the circumference of electronic device **3** is wrapped and well protected. When protective cover **2** is unfolded, the operation on the touch screen of the

[0022] Electronic device is convenient. For video viewing, as shown in FIG. **5** and FIG. **6**, second plate **22**, third plate **23** and fourth plate **24** of protective cover **2** are folded to form a ∠ shape. Then, the bottom edge of receiving unit **1** engaged to first plate **21** is placed on fourth plate **24** so that the back of receiving unit **1** is supported by protective cover **2** to stand with a tilt angle. Because protruding element **13** can rotate around buckle seat **25** of first plate **21**, the user can easily adjust the viewing mode to either landscape (FIG. **5**) or vertical (FIG. **6**) mode.

[0023] Furthermore, because receiving unit **1** and protective cover **2** are detachable, receiving unit **1** can be detached from protective cover **2** and attached to other auxiliary support apparatuses via slot **14** of protruding element **13** of receiving unit **1** when used in vehicle or other locations. In this manner, the present invention can be applied to a wide range of uses.

[0024] Although the present invention has been described with reference to the preferred embodiments, it will be understood that the invention is not limited to the details described thereof. Various substitutions and modifications have been suggested in the foregoing description, and others will occur to those of ordinary skill in the art. Therefore, all such substitutions and modifications are intended to be embraced within the scope of the invention as defined in the appended claims.

What is claimed is:

1. A protective apparatus for tablet electronic device, comprising:

a receiving unit and a protective cover;

wherein said protective cover being a foldable plate set, said plate set being able to fold into a three-dimensional U-shape, a first plate being edge plate of said plate set, said first plate having a buckle seat;

front surface of said receiving unit being for placing said electronic device, back surface having a protruding element, said receiving element using said protruding element to engage to said buckle seat of said protective cover and pivotedly rotating for angle adjustment, plates of said protective cover being able to fold to support said receiving unit so as to facilitate said receiving unit to stand in landscape and portrait mode with a tilt angle.

2. The protective apparatus as claimed in claim **1**, wherein said front surface of said receiving unit is a large area plate surface with edge slightly curvy inward, with a plurality of protruding clappers distributed around circumference of said plate surface.

3. The protective apparatus as claimed in claim **2**, wherein said plurality of clappers are curvy inwards and are located at four corners of said receiving unit.

4. The protective apparatus as claimed in claim **1**, wherein said buckle seat is shaped as a C clipper, with a trench narrow at top and wide at bottom, said protruding element of said receiving unit matches said shape of said buckle seat so that said protruding element can be placed into said buckle seat in the diameter direction and cannot slip from said buckle seat from axis direction once placed into.

5. The protective apparatus as claimed in claim **1**, wherein said protective cover comprises a first plate, a second plate, a third plate and a fourth plate, connected in above order, and foldable at each junction, total area of said first plate and said second plate is similar to area of said fourth plate, when folded into a three-dimensional U-shape, said third plate is the bottom side of said U-shape.

6. The protective apparatus as claimed in claim **1**, wherein said second plate, said third plate and said fourth plate of said protective cover can be folded into a ∠ shape, bottom edge of said receiving unit engaged to said first plate is placed on said fourth plate so that back of said receiving unit is supported by said plates of said protective cover to stand with a tilt angle.

7. The protective apparatus as claimed in claim **1**, wherein said protruding element of said receiving unit forms a slot, shaped to match an auxiliary support apparatus.

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