PROTECTING CASE FOR A MOBILE PHONE

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ABSTRACT
A protecting case comprises an upper protecting element and a lower protecting element that are both in the form of a hollow frame. The upper protecting element is shaped and sized to be closely fitted on an upper portion of a to-be-protected product while the lower protecting element is shaped and sized to be closely fitted on a lower portion of the to-be-protected product. The upper protecting element is formed with an upper engaging portion and a groove, and the lower protecting element being formed with a lower engaging portion and a rib. The upper protecting element is engaged on the upper portion of the to-be-protected product through the upper engaging portion. The lower protecting element is engaged on the lower portion of the to-be-protected product through the lower engaging portion. The upper and the lower protecting elements are engaged to each other through the groove and the rib.
PROTECTING CASE FOR A MOBILE PHONE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] The present invention relates to a protecting case; and more particularly to a protecting case for a mobile phone.
[0003] 2. Description of the Prior Art
[0004] Various protecting cases for mobile phones are developed for protecting mobile phones against abrasion and drop, preventing the product external appearance, use performance and service life from deteriorating.
[0005] Among numerous protecting methods and protecting apparatuses, there is a fashion and popular method to protect the mobile by covering the periphery of the mobile phone with a hard or soft sleeve, particularly the side edges and the angles (of the mobile) that are most likely to be scratched can be protected. The sleeves are mostly integrally-formed hard or soft rubber products, so that they cannot abut against the mobile phone to be protected closely, adversely affecting the appearance of the mobile phone.
[0006] The present invention has arisen to mitigate and/or obviate the aforesaid disadvantages.

SUMMARY OF THE INVENTION

[0007] The primary objective of the present invention is to provide a protecting case which can be closely fitted on the mobile phone into an integral structure.
[0008] To achieve the above objective, a protecting case in accordance with the present invention comprises an upper protecting element and a lower protecting element that are both in the form of a hollow frame.
[0009] The upper protecting element includes a rectangular upper engaging portion around a top thereof in such a manner that a top opening of the upper protecting element is smaller than a bottom opening of the upper protecting element, adjacent to the bottom opening of the upper protecting element is annularly provided a groove around an inner periphery of the upper protecting element, the upper protecting element is engaged on a to-be-protected product through the bottom opening of the upper protecting element in such a manner that the upper engaging portion of the upper protecting element is closely fitted on a top outer periphery of the to-be-protected product.
[0010] The lower protecting element includes a rectangular lower engaging portion around a bottom thereof in such a manner that a bottom opening of the lower protecting element is smaller than a top opening of the lower protecting element, adjacent to the top opening of the lower protecting element is annularly provided a rib protruding from an outer periphery of the lower protecting element. The lower protecting element is engaged at a bottom of the to-be-protected product through the top opening of the lower protecting element in such a manner that the lower engaging portion of the lower protecting element is engaged on a bottom outer periphery of the to-be-protected product while the rib is engaged into the groove of the upper protecting element.
[0011] The upper engaging portion of the upper protecting element is formed with a stepped frame body around the top thereof, and the frame body has an arc surface to be fitted on an arc surface formed on a top circumference of an upper portion of the to-be-protected product.
[0012] The whole lower protecting element is located at the lower portion of the to-be-protected product for fitting on the lower portion of the to-be-protected product.
[0013] Alternatively, the bottom opening of the lower protecting element is formed as a closed solid structure.
[0014] The upper and the lower protecting elements of the protecting case are made of hard rubber or metal, and the upper protecting element is further formed with at least one key hole to be aligned with keys on the to-be-protected product.
[0015] A top outer edge of the upper protecting element takes the form of a chamfered edge, a right-angle edge or a rounded edge.
[0016] A bottom outer edge of the upper protecting element takes the form of a chamfered edge, a right-angle edge or a rounded edge.
[0017] Besides the side edges and the angles of the to-be-protected product, the protecting case of the present invention can also protect the whole bottom surface of the to-be-protected product. Furthermore, other uncovered portion can also be protected by the upper protecting element and the lower protecting element against damage, scratch or wear. The upper protecting element is formed with the key holes to be aligned with the keys on the to-be-protected product, increasing the use convenience. Since the upper and the lower protecting elements are made of the hard rubber or metal, the protecting case may not affect the normal use of the to-be-protected product and make the protected product have the same hand feel as the product which is not protected by the protecting case, increasing convenience in use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 is an assembly view showing that a protecting case in accordance with the present invention is engaged on a to-be-protected product;
[0019] FIG. 2 is an exploded view of the protecting case in accordance with the present invention;
[0020] FIG. 3 is a partial enlarged view of a portion A of the protecting case in accordance with the present invention of FIG. 2;
[0021] FIG. 4 is a partial enlarged view of a portion B of the protecting case in accordance with the present invention of FIG. 2;
[0022] FIG. 5 is a partial enlarged view of a portion C of the protecting case in accordance with the present invention of FIG. 2;
[0023] FIG. 6 is an assembly view showing that a lower protecting element and an upper protecting element of the protecting case in accordance with the present invention are assembled together;
[0024] FIG. 7 is a right side view of the lower protecting element and the upper protecting element of the protecting case in accordance with the present invention that are assembled together;
[0025] FIG. 8 is a cross-sectional view of the protecting case along line 8-8 of FIG. 7 in accordance with the present invention;
[0026] FIG. 9 is a cross-sectional view of the upper protecting element of the protecting case along line 8-8 of FIG. 7 in accordance with the present invention;
[0027] FIG. 10 is a cross-sectional view of the lower protecting element of the protecting case along line 8-8 of FIG. 7 in accordance with the present invention;
FIG. 11 is an exploded view of another protecting case in accordance with the present invention;
FIG. 12 is a cross-sectional view showing that the top and the bottom of the upper protecting element both have corners with an outer surface in the form of a right angle in cross section; and
FIG. 13 is a cross-sectional view showing that the top and the bottom of the upper protecting element both have corners with an outer surface in the form of an arc line in cross section.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be clearer from the following description when viewed together with the accompanying drawings, which show, for purpose of illustrations only, the preferred embodiment in accordance with the present invention.

Referring to FIGS. 1-10, a protecting case in accordance with a preferred embodiment of the present invention comprises an upper protecting element 1 and a lower protecting element 2. The upper protecting element 1 is in the form of a hollow frame and includes a rectangular upper engaging portion 11 and a stepped frame body 13 around a top thereof in such a manner that a top opening 111 is smaller than a bottom opening 112. Adjacent to the bottom opening 112 is annularly provided a groove 12 around an inner periphery of the upper protecting element 1. The upper protecting element 1 is engaged on a to-be-protected product 3 through the bottom opening 112 in such a manner that the upper engaging portion 11 can be closely fitted on the top outer periphery of the to-be-protected product 3. The stepped frame body 13 of the upper protecting element 1 is formed with an arc surface to be fitted on an arc surface formed on a top circumference of an upper portion 31 of the to-be-protected product 3.

The lower protecting element 2 is in the form of a hollow frame and includes a rectangular lower engaging portion 22 around a bottom thereof in such a manner that a bottom opening 221 is smaller than a top opening 222. Adjacent to the top opening 222 is annularly provided a rib 21 protruding from an outer periphery of the lower protecting element 2. The lower protecting element 2 is engaged at the bottom of the to-be-protected product 3 through the top opening 222 in such a manner that the lower engaging portion 22 can be engaged on a bottom outer periphery of the to-be-protected product 3 while the rib 21 is engaged into the groove 12 of the upper protecting element 1. In other words, the upper and the lower protecting elements 1, 2 are engaged to each other through the groove 12 and the rib 21, and the upper and the lower protecting elements 1, 2 can be closely engaged on the to-be-protected product 3 to form an integral structure. Since the whole lower protecting element 2 is located at the lower portion 32 of the to-be-protected product 3, after the protecting case in accordance with the present invention is engaged on the to-be-protected product 3, it can protect the side edges and angles of the to-be-protected product 3 without affecting the appearance of the to-be-protected product 3.

In the present embodiment of the present invention, the upper protecting element 1 has an inner surface shaped and sized in such a manner that the upper engaging portion 11, the stepped frame body 13 and a longitudinal inner surface of the upper protecting element 1 can be closely fitted on the top outer periphery of the to-be-protected product 3, and the arc surface formed on the top circumference of the top portion 31. Furthermore, the lower protecting element 2 has an inner surface shaped and sized to be closely fitted on part of the lower portion 32 of the to-be-protected product 3.

In an alternative embodiment of the present invention, as shown in FIG. 11, the bottom opening 221 of the lower protecting element 2 can also be formed as a closed solid structure 223, so that the lower protecting element 2 serves as a bottom cover to be engaged with the upper protecting element 1. In order to make the protecting case of the present invention more beautiful, the upper engaging portion 11 and the lower engaging portion 22 both have an arc outer surface. The upper and the lower protecting elements 1, 2 are engaged to each other through the groove 12 and the rib 21 and closely fitted on the to-be-protected product 3 to form the integral structure. By such arrangements, besides the side edges and the angles of the to-be-protected product 3, the protecting case in the present embodiment of the present invention can also protect the whole bottom surface of the to-be-protected product 3. Furthermore, other uncovered portion can also be protected by the upper protecting element 1 and the lower protecting element 2 against damage, scratch or wear.

The upper and the lower protecting elements 1, 2 of the protecting case of the present invention can both be made of hard rubber or metal. In addition, the upper protecting element 1 can be further formed with at least one key hole 113 to be aligned with the keys 33 on the to-be-protected product 3, increasing the use convenience.

In addition, the top outer edge of the upper protecting element 1 takes the form of a chamfered edge 14, as shown in FIGS. 8 and 9, a right-angle edge 15 as shown in FIG. 12 or a rounded edge 16 as shown in FIG. 13.

Likewise, the bottom outer edge of the upper protecting element 1 takes the form of a chamfered edge 17 as shown in FIGS. 8 and 9, a right-angle edge 18 as shown in FIG. 12 or a rounded edge 19 as shown in FIG. 13.

The to-be-protected product 3 of the present invention is a mobile phone, preferably an apple iPhone.

While we have shown and described various embodiments in accordance with the present invention, it is clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

What is claimed is:

1. A protecting case comprising:
   an upper protecting element the form of a hollow frame including a rectangular upper engaging portion around a top thereof in such a manner that a top opening of the upper protecting element is smaller than a bottom opening of the upper protecting element, adjacent to the bottom opening of the upper protecting element being annularly provided a groove around an inner periphery of the upper protecting element, the upper protecting element being engaged on a to-be-protected product through the bottom opening of the upper protecting element in such a manner that the upper engaging portion of the upper protecting element is closely fitted on a top outer periphery of the to-be-protected product; and
   a lower protecting element in the form of a hollow frame including a rectangular lower engaging portion around a bottom thereof in such a manner that a bottom opening of the lower protecting element is smaller than a top opening of the lower protecting element, adjacent to the top opening of the lower protecting element being annularly provided a rib protruding from an outer periphery.
of the lower protecting element, the lower protecting element being engaged at a bottom of the to-be-protected product through the top opening of the lower protecting element in such a manner that the lower engaging portion of the lower protecting element is engaged on a bottom outer periphery of the to-be-protected product while the rib is engaged into the groove of the upper protecting element.

2. The protecting case as claimed in claim 1, wherein the upper engaging portion of the upper protecting element is formed with a stepped frame body around the top thereof, the frame body has an arc surface to be fitted on an arc surface formed on a top circumference of an upper portion of the to-be-protected product.

3. The protecting case as claimed in claim 2, wherein the whole lower protecting element is located at the lower portion of the to-be-protected product for fitting on the lower portion of the to-be-protected product.

4. The protecting case as claimed in claim 2, wherein the bottom opening of the lower protecting element is formed as a closed solid structure.

5. The protecting case as claimed in claim 1, 2, 3 or 4, wherein the upper and the lower protecting element of the protecting case are both made of hard rubber or metal, and the upper protecting element is further formed with at least one key hole to be aligned with keys on the to-be-protected product.

6. The protecting case as claimed in claim 1, wherein a top outer edge of the upper protecting element takes the form of a chamfered edge, a right-angle edge or a rounded edge.

7. The protecting case as claimed in claim 1, wherein a bottom outer edge of the upper protecting element takes the form of a chamfered edge, a right-angle edge or a rounded edge.

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