A COMPACT DISC CASE

The present invention relates to a compact disc case, more particularly to a compact disc case having an integrally formed structure to achieve disc protection and further having a higher storage capacity.

When a compact disc (CD) is not in use it is commonly returned to the plastic case in which it was sold to prevent scratching or accumulation of foreign matter on the playing surface to the CD. Such a conventional plastic case is shown in Fig. 5 and comprises a base cover 90, a receiving tray 80 detachably mounted on the base cover 90, a top cover 70 pivotally connected to the base cover 90 at one end by which a CD can be enclosed in the case.

The receiving tray 80 has a plurality of resilient tabs 51 extending from edges thereof to engage with corresponding recesses in the base cover 90. The top cover 70 is sized to mate with the base cover 90 and has formed two hinge portions at one edge thereof to pivotably engage with corresponding hinge portions of the base cover 90.

Although this type of CD case is widely used in the market currently, it has some well recognized drawbacks, such as, breakage of the hinge portions resulting in disconnection of the base cover 60 and top cover 40, and also it needs tiresome assembling processes in order to be constructed, which causes high manufacturing costs. The present invention provides an improved compact disc case to mitigate and/or obviate the aforementioned problems.

One object of the present invention is to provide an

improved compact disc case being integrally formed thus eliminating the need for assembly.

Another object of the present invention is to provide an improved compact disc case which will not break easily.

Yet another object of the present invention is to provide an improved compact disc case having a CD support disposed within the cover to prevent distortion of the CD.

Yet another object of the present invention is to provide an improved compact disc that can contain up to four compact discs therein.

In accordance with one aspect of the present invention, the compact disc case comprises an integrally formed first member, second member and middle member. The middle member forms two flexible connections to separately connect the first member at a first edge thereof and the second member at a second edge thereof. The first member has first locking elements formed at a second edge thereof. The second member has a first holding element comprising protruding ring formed at a center of an inner face thereof with a diameter smaller than a diameter of a compact disc for supporting the disc, and second locking elements formed at a second edge thereof for respectively and detachably engaging with the first locking elements and thereby retaining closed the case when it is folded.

In accordance with another aspect of the present invention, the second member further comprises a table formed in the center of a first face, and a deformable protrusion formed on the table for retaining the disc at a

center thereof and a first circular rib surrounding the table.

In accordance with another object of the present invention, the first member has a second holding element comprising a second table and a second table and a second protrusion. A second circular rib is formed in the first member surrounding the second holding element.

In accordance with yet another aspect of the present invention, the second member has a reinforcement component extending longitudinally thereon. The reinforcement component comprises two longitudinal parallel walls.

Yet another aspect of the present invention comprises a plurality of resilient catches formed along the walls of the reinforcement component, a separation plate mounted to the second member, the separation member having third and fourth faces. The third and fourth faces each have formed respectively thereon a third and a fourth holding element, and a third and a fourth circular rib. Furthermore, a plurality of connecting elements are formed along one edge thereof to engage with the resilient catches of the reinforcement component.

Other objects, advantages, and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of a compact disc case in accordance with the present invention;

FIG. 2 is a plane cross-sectional view of the compact disc case in accordance with the present invention, showing a state of the CD being supported;

FIG. 3 is a schematic view of the compact disc case in accordance with this invention, showing a state of the case being closed;

FIG. 4 is a schematic view of the compact disc case of this invention, showing a state of the connection of the first member and the second member;

FIG. 5 is a perspective view of a compact disc case in accordance with a second embodiment of the present invention;

FIG. 6 is a cross-sectional side view of a compact disc case in an open state in accordance with the second embodiment of the present invention;

FIG. 7 is a side view of the compact disc case in a closed state in accordance with the second embodiment of the present invention;

FIG. 8 is an exploded perspective view of a third embodiment of the present invention;

FIG. 9 is a cross-sectional side view of the third embodiment of the present invention in an open state with compact discs therein which are shown by phantom lines;

FIG. 10 is a cross-sectional side view of the third embodiment of the present invention in a closed state with compact discs therein shown by phantom lines;

FIG. 11 is an exploded perspective view showing a conventional compact disc case.

Referring to the drawings and initially to FIG. 1, the compact disc case in accordance with the present invention is integrally formed having a first member 10, a second member 20 and a third member 30.

The first member 10 and the third member 30 each with a respective first and second plate 12, 32 are substantially the same size and shape, and respectively have a first end 14 and a second end 34 integrally formed to the second member 20 and further respectively have a third end 16 and a fourth end 36 respectively opposite to the first and second ends 14, 34.

The second member 20 has two spaced-apart grooves longitudinally defined in one side thereof to permit the first member 10 and the third member 30 to be swung toward each other. The third end 16 of the first member 10 has at least one resilient catch 162 extending perpendicularly therefrom. The fourth end 36 of the third member 30 has a rail 362 extending perpendicularly therefrom, said rail 362 defining at least one lip 364 corresponding to the at least one catch 162. Referring to Fig. 4, the catch 162 has a neck narrower than a remaining recess defined therein. The recess is sized to receive the lip 364 whereby the lip 364 is securely yet removably retained in the catch 162. Resilience of the catch 162 allows the lip 364 to be extracted therefrom under a specified force from a user.

The first member 10 includes a pair of arms 18, each arm 18 projecting perpendicularly from a top and a bottom edge thereof. Each arm 18 has at least two projections 182

extending towards an opposite arm 18 thereby defining a gap between each arm 18 and the plate 12. A card bearing information of a CD to be enclosed in compact disc case can be retained in position by the projections 182.

The plate 32 of the third member 30 further includes a CD retaining element comprising a first central table 322 from which a first radially deformable boss 324 projects outwardly. The first deformable boss 324, when in a deformed condition, is sized to receive a periphery defining a center hole of a CD and, in a non-deformed condition, can securely retain the CD.

The plate 32 further includes a first circular rib 326, a diameter of which is slightly smaller than a diameter of a CD and a height of which is equal to a height of the table 322 so that the CD is prevented from being bent due to it being supported by the rib 326. Furthermore, the rib 326 stiffens the plate 32.

Figs. 2 and 3 show the compact disc case in accordance with the present invention in respective open and closed states.

Referring to Figs. 5 and 6, the compact disc case in accordance with a second embodiment of the present invention includes an integrally formed reinforcement component 22 and a second CD holding element on the first member 10. The plate 12 of the first member 10 has a central table 122 from which a second deformable boss 124 projects outwardly and on which a CD can be securely retained. The plate 12 further includes a second circular rib 126. As the second central

table 122, second deformable boss 124 and second circular rib 126 are identical to the corresponding table 322, boss 324 and rib 326 of the third member 30, they are not described in further detail here.

Still referring to Figs. 5 and 6, the second member 20 has a reinforcement component 22 projecting outwardly and extending along a width of an inner face thereof. The reinforcement component 22 comprises two longitudinal side walls 23 and two end walls (not labeled) which together define a slot 24 therein. Fig. 7 shows the second embodiment of the present invention in a closed state.

Referring to Figs. 8 and 9, in a third embodiment of the present invention, a plurality of catching elements 26 are oppositely formed on each sidewall 23, along a length thereof. Preferably, the catching elements 26 each comprise a protrusion projecting inwardly from a top end of the side wall 43. A fourth member 50 comprises a third and a fourth holding elements 52, 54 respectively formed at a center of a third face and a fourth face thereof for holding compact discs respectively and a plurality of connecting elements 56 defined along one edge thereof. Preferably, the connecting elements 56 are in a form of recesses and are sized and located to matingly engage with the catching elements 26. Further, the third and fourth compact disc holding elements are identical to the first and second holding elements and thus will not be further described herein.

In assembly, the fourth ember 50 is coupled to the second member 20 by inserting the edge comprising the

connecting elements 56 into the slot 24. By way of an engagement of the catching elements 26 and connecting elements 56, as shown in Fig. 9, the fourth member 50 is coupled to the second member 20 to form the compact disc case. Preferably, each catch element 26 has an oblique upper face to facilitate the insertion of the fourth member 50. When the compact disc case is folded, the fourth member 50 and the compact discs are enclosed therein, as shown in Fig. 10.

Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

CLAIMS:

1. A compact disc case comprising:

a first member and a third member integrally attached by respective first and second edges thereof to a second member extending therebetween;

the first member having at least one locking element formed at a third edge thereof opposite to the first edge;

the third member having at least one locking device formed at a fourth edge thereof opposite to the second edge, corresponding to and engageable with the at least one locking element of the first member, a first holding element, and first stiffening means projecting from a first top face;

the second member defining at least one longitudinal groove therein.

2. A compact disc case as claimed in claim 1, wherein the first holding element comprises a table centrally and perpendicularly extending from the first top face of the third member and a deformable boss sized to receive a periphery defining a center hole of a compact disc.

3. A compact disc case as claimed in claim 1, wherein the resilient stiffening means is a circular rib with a diameter smaller than a diameter of a compact disc and with a height equal to a height of the table.

4. A compact disc case as claimed in claim 1, wherein a second top face of the first member has a second holding element and a second stiffening means projecting therefrom.

5. A compact disc case as claimed in claim 4, wherein the

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second holding element comprises a central and perpendicular table with a deformable boss extending therefrom, said deformable boss sized to receive a periphery defining a center of a CD.

6. A compact disc case as claimed in claim 1, wherein the second member has integrally formed thereon a reinforcement component comprising two longitudinal, parallel walls, two end walls, and a longitudinal recess defined therebetween.

7. A compact disc case as claimed in claim 6, wherein each of the longitudinal parallel walls of the reinforcement element have a plurality of catching elements; and a fourth member mountable to the reinforcement component having a first side and a second side and a plurality of connecting elements on a first edge corresponding to and engagable with the catching elements.

8. A compact disc case as claimed in claim 7, wherein the first side and the second side of the fourth member have a respective third and fourth holding means.

9. A compact disc case as claimed in claim 8, wherein the first side and the second side of the fourth member have a respective third and fourth stiffening means.

10. A compact disc case as claimed in claim 9, wherein the third and fourth stiffening means are circular ribs.

11. A compact disc case as claimed in claim 7, wherein each catching element comprises a protrusion inwardly projecting from each longitudinal wall of the reinforcement component and each connecting element of the fourth member comprises a recess, each protrusion having an oblique face to facilitate

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an insertion of the fourth member.