

A CONTAINER FOR OPTICAL STORAGE MEDIA

The present invention relates to a container for optical storage media, more particularly, but not exclusively, for a compact disc.

The term 'optical storage media' refers to discs which contain digitally encoded information on at least one surface. This information is read by laser beams prior to decoding and playback. Some examples of optical storage media are compact discs (CDs) and laser discs (LDs). Most of the prevalent optical storage media on sale are accompanied by printed information booklets containing graphics including but not limited to titles, lyrics, photographs and information on performers.

The most common container for CDs is the jewel-box which is a box formed by two rigid plastic sheets hinged along a common side. Snap fitted inside one of the plastic sheets is a styrene tray with a centre hub which engages the CD. The jewel-box has inherent disadvantages in that it is not dirt-proof and is bulky, fragile, and expensive to manufacture because of its three piece construction and need for manual assembly.

Accordingly, flexible plastics sleeves, much thinner than the jewel-box, have been proposed to store and protect CDs. One such proposal is disclosed in U.S. Pat. No. 4,850,731. This comprises a composite fibre/plastics sheet sealed at the edges in between two flexible plastics sheets. The sheets have one unsealed edge each resulting in two pockets for insertion of a CD and a graphics booklet respectively. A flap extends from one sheet and folds over to completely cover the exposed portion of the inserted CD and the other sheet. This proposal, however, does not economise on materials used and the composite sheet makes manufacturing complicated.

Another similar product is disclosed by U.S. Pat. No. 5,396,987. This comprises an intermediate plastics sheet sealed at the edges in between two further plastics sheets. One sheet has an unsealed edge which forms a pocket to retain a CD while the other sheet is slit to form a pocket for retaining a graphics booklet. However this proposal leaves a portion of the inserted CD exposed and does not adequately protect the optical surface of

the CD.

According to the invention, there is provided a container for optical storage media comprising a first flexible sheet peripherally connected to a sheet of non-woven fabric wherein the flexible sheet is slit to form a pocket for insertion of the optical storage media and a flap for covering the inserted optical storage media. Preferably the container also comprises a further flexible sheet, also peripherally connected to the sheet of non-woven fabric, to form another pocket for the insertion of a graphics booklet. The container preferably further includes at least one flap movable for the insertion of information bearing strips.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which :

Figure 1 is a perspective view of an embodiment of the invention depicting the storage position of a compact disc.

Figure 2 is a perspective view of the reverse side of the embodiment in Figure 1 depicting the storage position of a graphics booklet.

Figure 3 is a cross-sectional view taken along line 2,2 of Figure 1 with the flap of the pocket for retaining the CD in a closed position.

An embodiment of the invention is shown in Figure 1 in which a pocket on one side of a two-sided container 30 retains a CD 12. The other side of the same embodiment is shown in Figure 2 and comprises another pocket for retaining a graphics booklet 50.

A typical CD 12 as shown in Figure 1, comprises two surfaces, one surface 18, hereinafter referred to as the optical surface, containing digitally encoded information and the other surface 20, hereinafter referred to as the printed surface, showing information pertaining

to titles, songs and record labels. CDs are usually handled by inserting one finger in aperture 14 and by gripping edge 16 with the thumb. It is essential that the optical surface 18 remains relatively free from scratches, dust or fingerprints to facilitate unhindered reading of the CD.

Accordingly, the container 30 includes a rectangular sheet of non-woven fabric 40 that is dust-free, non-scratching and non-linting and is intended for contact with optical surface 18 of an inserted CD. The non-woven fabric 40 is preferably produced from polyester fibre. A specific example of such a fabric is "SONTARA"[®] spunlaced fabric produced by the E.I. DuPont de Nemours & Company, Inc. A special characteristic of such fabrics is that they prevent dust from passing through from one surface of the fabric to the other. In addition to being devoid of lint, these fabrics are also soft and smooth and therefore do not accumulate dirt or scratch surfaces in contact with them.

As shown in Figure 1, the sheet of non-woven fabric 40 is slightly larger in size than a typical CD and has one surface connected along edges 32 and 34 to a flexible, preferably transparent, plastics sheet 35 of the same size. The portion of plastics sheet 35 that lies within the area bound by edges 32 is slit along contour 39 to form a pocket 38 and a flap 36. The CD 12 may then be held in the conventional way and inserted, as indicated by the arrow, in pocket 38 with flap 36 raised such that the entire optical surface 18 rests on the scratch-proof and dirt-proof non-woven fabric sheet 40. Flap 36 folds over, such that its edge 37 meets the contour 39, and covers the otherwise exposed portion of the inserted CD 12. Thus plastics sheet 35 is disposed over printed surface 20 of the inserted CD 12 and flap 36 prevents the inserted CD 12 from slipping out of pocket 38.

Figure 2 shows the other surface of non-woven fabric 40 as connected along edges 32 and 34 to another flexible, preferably transparent, plastics sheet 42 of the same size as plastics sheet 35 and non-woven fabric sheet 40. The portion of plastic sheet 42 bound by edges 32 is slit, preferably parallel to one of the edges 32. A pocket with an unsealed edge 44 is thus formed. A graphics booklet 50 may then be inserted into the pocket, with opening 44, as indicated by the arrow.

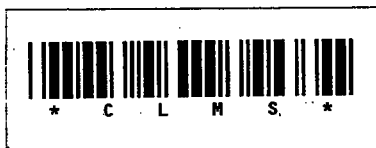
The cross-sectional view as depicted in Figure 3 shows the preferred embodiment of the

invention 30, with flap 36 closed, retaining an inserted CD 12 and graphics booklet 50. Optical surface 18 and printed surface 20, of inserted CD 12, lie in close relation with non-woven fabric sheet 40 and plastic sheet 35 respectively. This way inserted CD 12 is protected from dust and scratches and at the same time has no exposed portions.

As shown in Figure 1, the portion of plastics sheet 35 bound by edge 34 and the nearest parallel edge 32 is slit along contour 31 to form a flap 33. Similarly, referring to Figure 2, the portion of plastics sheet bound by edge 34 and the nearest parallel edge 32 is slit along contour 41 to form a flap 43. Flaps 33 and 43 may be raised and strips bearing titles and other information may be inserted.

Heat lamination may be employed for connecting plastic sheets 35 and 42 to non-woven fabric sheet 40. If heat lamination is used, the plastic sheets 35 and 42 partially melt through the non-woven fabric sheet 40 and form a seal which bonds the separate sheets on cooling.

The embodiment of the invention described is not to be construed as limitative. For example, although shown used for package and storage of CDs, with an appropriate increase in size of the plastics sheet 42 and, optionally, use of non-woven fabric sheet 40 as described above and as a replacement for plastics sheet 35, the device may also be used to store and pack laser discs which normally have digitally encoded information on both surfaces. Furthermore, the use of sheets made of material other than plastics or the use of a connecting method other than heat lamination, do not depart from the scope of the present invention.



CLAIMS

1. A container for optical storage media comprising a first flexible sheet peripherally connected to a sheet of non-woven fabric wherein said flexible sheet is slit to form :
a pocket for insertion of said optical storage media; and
a flap for covering said inserted optical storage media.
2. A container as claimed in claim 1 comprising a second flexible sheet peripherally connected to the first flexible sheet forming a pocket for the insertion of printed information.
3. A container as claimed in claims 1 and 2 further comprising a flap formed in a said flexible sheet, movable for the insertion of an information bearing strip.
4. A container as claimed in any one of the preceding claims wherein the sheet of non-woven fabric is formed from "SONTARA"[®] spunlaced fabric.
5. A container as claimed in any one of the preceding claims wherein the first flexible sheet is connected to the non-woven fabric sheet by heat lamination.
6. A container as claimed in any one of the preceding claims wherein the or each flexible sheet is a transparent plastics sheet.
7. A container as claimed in any one of claims 1 to 5 wherein the first flexible sheet is a sheet of non-woven fabric.
8. A container as claimed in any one of claims 1 to 6, adapted for storage of a compact disc.
9. A container as claimed in any one of claims 1 to 7, adapted for storage of a laser disc.