

PACKAGING

Field of the Invention

This invention relates to packaging and has been developed specifically in relation to the packaging of discs, e.g. compact discs. For example, there is a requirement that the discs are adequately protected when despatched through the post. In addition to providing adequate protection, the design of the packaging should be such that it involves the minimum of weight (so as to avoid unnecessary postal charges) and, at the same time, the method of removal of the compact disc from its packaging should be readily apparent and removal easily effected.

The packaging for a compact disc should not only be such that the compact disc is effectively protected when despatched to a customer by post but the packaging must be such that, when the compact disc is displayed for sales purposes, the packaging can be printed or otherwise provided with eye-catching designs.

It is accordingly an object of the present invention to provide an improved form of packaging which is suitable for use in relation to discs, e.g. compact discs.

We are aware that there have been many previous proposals for packaging for compact discs. Examples are shown in US Patent Specification No. 5,460,625 and in International Patent Applications Nos. WO 93/24927 and WO 95/26917.

In the embodiment shown in Figures 1 to 12 of the drawings of US Patent Specification No. 5,460,265, there is disclosed a pack formed from a one-piece blank which includes a panel 40 which has a large centrally located hole 45 in which it is intended that the compact disc should be received. It is thus, presumably, necessary that the thickness of the card from which the panel 40 (and thus the whole blank) is formed should have a thickness which is at least equal to the thickness of the compact disc. The complete pack will accordingly be quite heavy.

The compact disc is intended to be held in position by means of a half-panel secured by an adhesive to the panel 40. It is necessary to incline the compact disc relative to the plane of the panel 40 when inserting the disc into the hole 45 or when removing the disc from the hole 45. This will inevitably place a strain on the adhesive securing the half-panel 50 to the panel 40 and the half-panel 50 will accordingly have a tendency to pull away from the panel 40. The pack will thus rapidly fall apart.

It is accordingly an object of the present invention to provide an improved form of pack for a disc which is suitable for use as a postal pack and which will not fall apart in use.

A further object of the invention is to provide a pack for a disc which is so designed that it can be manufactured using automatic folding and gluing equipment.

Summary of the Invention

According to a first aspect of the present invention there is provided a pack for a disc comprising a front cover and a back cover which are hingedly connected to each other, and a holder for the disc carried by the back cover, said holder being constituted by a plurality of sheets bonded together one on top of the other and to the back cover, said plurality of sheets comprising a top sheet formed with an aperture through which the disc is visible and at least one intermediate sheet between the top sheet and the back cover, the or each or at least one intermediate sheet being formed with an aperture to receive the disc, and the aperture in the top sheet including a main portion of generally semi-circular form to define a generally semi-circular opening through which a disc can be removed or inserted.

The aperture in the or each intermediate sheet preferably comprises a main circular portion (within which the disc is received) and a pair of arcuate lobes which are aligned with corresponding arcuate lobes extending from the generally semi-circular opening in the top sheet, said aligned lobes being arranged to enable a user to contact the periphery of the disc to facilitate removal of the disc through said semi-circular opening. There is preferably also a cut-out or lobe at the centre of said semi-circular opening so that the

user can also contact the central portion of the disc when removing the disc through the opening.

The front cover, the back cover and the top sheet of the holder are preferably produced from a single blank formed with appropriate fold lines, said blank being formed of card of an appropriate grade and thickness and having characteristics such that, if required, printing can be applied to both surfaces of the blank.

There may be a single apertured intermediate sheet interposed between the top sheet of the holder and the back cover and, in such instance, said single intermediate sheet may be formed from card which is thicker than the card from which the remainder of the pack is formed, for example, it may be twice as thick as the other card. In some instances, there may be a further non-apertured intermediate sheet located between the apertured intermediate sheet and the back cover.

Said single intermediate sheet may be a separate sheet of card or it may be constituted by half of a larger sheet folded in two.

According to a second aspect of the present invention there is provided a pack for a disc comprising first and second sheets hingedly connected together and a third sheet sandwiched between the first and second sheets, the third sheet being formed with an aperture which acts as a compartment to receive the disc, the second sheet acting as a closure for one side of the compartment

and the first sheet being formed with an aperture through which the disc can be inserted into or removed from said compartment.

The aperture in the third sheet may extend to an edge of the third sheet and a fourth sheet is then preferably hingedly connected to the third sheet for folding movement relative thereto about said edge. The third and fourth sheets are preferably formed from card having strength and rigidity characteristics greater than the card from which the first and second sheets are formed, typically being formed from card which is almost twice as thick (and thus twice as heavy) as the card from which the first and second sheets are formed.

Brief Description of the Drawings

Figure 1 is a plan view of a first blank for use in the manufacture of a first form of compact disc pack,

Figure 2 is a plan view of a second blank for use in conjunction with the blank of Figure 1 in the manufacture of said first form of compact disc pack,

Figure 3 is a plan view of said first form of compact disc pack in its open condition,

Figure 4 is a side view of the pack of Figure 3,

Figure 5 is a plan view of a first blank for use in the manufacture of a second form of compact disc pack,

Figure 6 is a plan view of a second blank for use in conjunction with the blank of Figure 5 in the manufacture of said second form of compact disc pack,

Figures 7, 8 and 9 shows stages in the manufacture of the second form of compact disc pack,

Figure 10 shows the completed second form of compact disc pack,

Figure 11 shows the second form of compact disc pack containing a compact disc,

Figures 12 and 13 show the two parts of a pack for a "floppy" disc,

Figure 14 shows a stage in the manufacture of the "floppy" disc pack, and

Figure 15 shows the "floppy" disc pack containing an inserted disc.

Description of the Preferred Embodiments

The blank 10 shown in Figure 1 is formed of thin high-quality card of such nature that printing can be applied to it. Such printing may comprise, for example, logos, insignia and information concerning the contents of the disc. The blank 10 has two fold lines 11 and 12 which divide the blank 10 into three portions 13, 14 and 15. Portions 13 and 14 are solid and form the front and back covers respectively of the completed pack, whereas portion 15 acts as the top sheet of a holder for the compact disc. Portion 15 is formed with an aperture or cut-out 16.

The upper boundary 17 of the aperture 16 comprises a semi-circle with two arcuate lobes or notches 18 symmetrically arranged relative to the vertical centre-line of the aperture 16. The lobes or notches 18 are directed towards the upper corners of blank portion 15 so as to be spaced from the edges of blank portion 15 and thereby avoiding weakening the part of the blank portion 15 surrounding the aperture 16.

The lower boundary 19 is of curved wave form as shown so as to provide a lobe or notch 20 at the centre of the circle from which the arc forming the upper boundary 17 is struck. This lobe 20 is positioned between two arcs so that the visual impact of the aperture 16, particularly when a compact disc is contained within the pack, suggests a "smiling Teddy Bear".

The blank 21 shown in Figure 2 is formed from a card which is thicker and heavier than the card from which blank 10 is formed, typically being twice as thick as the card of blank 10. Only the

edges of blank 21 are visible in the completed pack and the card from which blank 21 is formed does not, therefore, need to be of print quality.

Blank 21 is formed with an aperture or cut-out 22 which is of circular form with the same radius as the circle of aperture 16 in blank portion 15. The aperture 22 is formed with two arcuate lobes or notches 23 which are symmetrically positioned relative to the vertical centre line of blank 21 and are directed towards the upper corners of blank 21. The formation of the lobes or notches 23 thus does not weaken the border surrounding the aperture 22 which has a diameter slightly greater than that of the compact disc which it is intended to receive.

Blank 21 is of the same height as blank 10 and its width is the same as that of portion 15 of the blank 10. In assembly of the pack, blank 21 is glued or otherwise bonded in position on top of and in register with portion 15 of blank 10 with the upper portion of the aperture 22 in register with the aperture 16 and with the lobes 23 in register with the lobes 18. In a typical assembly operation, dots of adhesive are applied to the upper surface of blank portion 15 and blank 21 placed in position on top of blank portion 15 and pressure and, optionally, heat applied to effect permanent bonding of blank 21 and blank portion 15.

Blank portion 15 and blank 21 are then folded about fold line 12 and glued or otherwise bonded in position on top of blank portion 14. In a typical assembly operation, dots of adhesive are

applied to the upper surface of blank portion 14, i.e. to those parts thereof which will be contacted by blank 21, and then blank portion 15 and blank 21 are folded about fold line 12 and pressure and, optionally, heat applied to effect permanent bonding of blank 21 and blank portion 14. The condition shown in Figures 3 and 4 is thus obtained. Blank portion 13 serves as the front cover of the completed pack and blank portion 14 serves as the back cover of the completed pack.

The combination of blank 21 and blank portion 15 thus serves as a holder for the compact disc with the compact disc located within the aperture 22 in blank 21 and removable from, and insertable into. Said aperture 16 through the generally semi-circular opening 16 in blank portion 15.

To remove the compact disc from the holder, the user will normally engage the central part of the compact disc with the tip of his or her thumb entering the lobe 20. At the same time, he or she will engage the periphery of the compact disc using the tip of his or her index finger which will enter either pair of aligned lobes 18, 23. A right-handed person will normally use the right-hand pair of aligned lobes 18, 23 while a left-handed person will normally use the left-hand pair of aligned lobes 18, 23.

If desired, the front cover of the pack may comprise two or more sheets folded one on top of the other, so as to enable additional information or instructional material to be provided. In an

alternative arrangement, a booklet containing such material can be secured to the inside face of the front cover of the pack.

Turning next to Figures 5 to 11, these show a second form of compact disc pack which is made from a first blank 30 (shown in Figure 5) and a second blank 31 (shown in Figure 6). Blank 30 is formed from high-quality thin card to which printing can be applied whereas blank 31 is of thicker, heavier card, which is not visible in the completed pack and to which printing is not applied.

Blank 30 comprises five portions 32, 33, 34, 35 and 36 whilst blank 31 comprises two portions 37 and 38. Portions 32, 33, 34 and 36 are plain unapertured sheets, whilst portion 35 is formed with a cut-out or aperture 39 having a configuration corresponding to that of aperture 16 in portion 15 of the first blank 10 of the first form of pack. Thus aperture 39 has an upper boundary comprising a semi-circle with two symmetrically located lobes or notches 40 which correspond to the lobes or notches 18 and a lower boundary which corresponds to boundary 19 of said first embodiment.

Blank portions 32, 33, 34 and 35 are of constant height whereas blank portion 36 has its lower edge 36A spaced upwardly a short distance relative to the lower edges of the other blank portions 32 to 35. Blank portions 32 to 35 have a height which is slightly less than the common height of blank portions 13, 14 and 15 of said first embodiment, the height of blank portions 32 to 35 being the same as the standard height of current popular music compact disc packs, i.e. "single's" packs.

Portion 38 of the second blank 31 is a plain unapertured sheet, whereas portion 37 of blank 31 is formed with an aperture 41 to receive a compact disc. The aperture 41 includes a main circular portion and two symmetrically positioned lobes 42, corresponding to the lobes 23 of the aperture 22 in the second blank 21 of the first form of pack. The aperture 41, however, includes an extension 43 which extends up to the fold line 44 between the two blank portions 37 and 38. The centre of the circular aperture 41 is positioned in blank portion 37 such that, if the circle had been completed, i.e. if the extension 43 were not present, the lower part of the circumference of the circle would touch or come very close to the fold line 44. The provision of the extension 43 ensures that there are no very thin sections of card adjacent the fold line 44, since such very thin sections might easily become torn or broken.

In assembly of the pack, portion 37 of the second blank 31 is glued or otherwise bonded on top of portion 35 of the first blank 30 so that the boundaries of the apertures 39 and 41 in the portions 35 and 37 are in register, as are the two pairs of lobes 40 and 42. This is the condition shown in Figure 7.

Blank portion 36 is then folded over and glued or otherwise bonded in position on top of blank portion 37, so as to obtain the condition shown in Figure 8. Portion 38 of the second blank 31 is then folded upwardly and secured in position on top of blank portion 36 so as to obtain the condition shown in Figure 9 in which there is a CD pocket formed from four sheets 35, 37, 36 and 38 fixed

together on top of one another, sheet 35 then being the lowermost of the four sheets forming the pocket.

This CD pocket is then folded across on top of blank portion 34 and secured to blank portion 34 to obtain the condition shown in Figure 10. Blank portion 34 acts as a back cover for the pack, while blank portion 33 acts as a front cover for the pack. The flap afforded by blank portion 32 can either be glued to the front cover 33, for extra pack strength, or used as an extra printed surface. In addition, a booklet or the like can be affixed to the front cover if required.

The second form of pack thus comprises the front cover 33, the back cover 34 and a holder or pocket for the compact disc 45. The holder comprises a top sheet 35 formed with a generally semi-circular opening 39, a double-thickness sheet 37 formed with an aperture 41 to receive the compact disc and two backing sheets 36 and 38. As can be seen from Figure 11, the compact disc 45 is positioned in the pack so that part of the compact disc 45 is visible when the front cover 33 is open. The disc 45 is removed from the pack as described above in relation to the first form of pack using the tip of one thumb to engage the central part of the disc 45 and the tip of the appropriate index finger which engages the appropriate pair of aligned lobes or notches 40, 42 to engage the periphery of the disc 45.

Turning next to Figures 12 to 15, these show a pack 50 for a "floppy" disc 51, the pack 50 being manufactured from a first blank 52 formed from high quality card which is such that motifs, insignia

and/or other information can be printed thereon, and a second blank 53 which is formed of card which is substantially thicker than the card from which the first blank 52 is formed.

The first blank 52 comprises three portions 54, 55 and 56 separated by double fold lines 57 and 58, with the spacing between the fold lines 57 greater than the spacing between the fold lines 58. Blank portion 54 forms the front cover of the completed pack 50, while blank portion 55 forms the back cover of the completed pack 50. Blank portions 54 and 55 are solid, whereas blank portion 56 is formed with an aperture 59.

The aperture 59 in blank portion 56 can again be regarded as of substantially semi-circular configuration, though it differs more from a true semi-circular form than the apertures in the corresponding blank portions of the packs for compact discs shown in Figures 1 to 11. The aperture 59 is thus bounded by:-

- a) a lower edge 60 of wave-like form and with a wave trough at the position corresponding substantially to the centre of the blank portion 56,
- b) an upper edge 61 of curvate form, and
- c) a pair of side edges 62 and 63.

Part-circular lobes 64 and 65 are provided at the junctions between the upper edge 61 and the two side edges 62 and 63.

The second blank 53 is formed with an aperture 66 which is bounded by:-

- a) a straight lower edge 67,
- b) an upper edge 68 of curvate form, and
- c) a pair of side edges 69 and 70.

Part-circular lobes 71 and 72 are again provided at the junctions between the upper edge 68 of the aperture 66 and the two side edges 69 and 70.

In assembly of the pack of Figures 12 to 15, adhesive is applied to the presented face of the blank portion 56 and then the second blank 53 is placed on top of the blank portion 56 so that one face of the second blank 53 will become bonded to the blank portion 56. Adhesive is then applied to the presented face of the blank portion 55. The combination of the blank portion 56 and the second blank 53 is then folded over (as indicated by the arrow X in Figure 14), along the fold lines 58, so that the other face of the second blank 53 will become bonded to the blank portion 55 and the condition shown in Figure 15 will be obtained.

When the second blank 53 is placed on top of the blank portion 56, the lobes 71 and 72 will be in register with the lobes 64 and 65, the upper edge 68 will be in register with the upper edge 61 and the upper portions of side edges 69 and 70 will be in register with the side edges 62 and 63.

In the completed pack, i.e. when the second blank 53 has been bonded to the blank portion 55, the second blank 53 is not visible; all that can be seen is the aperture 59 in the blank portion

56 and, through it, the registering part of blank portion 56. The aperture 59 serves as an opening through which the "floppy" disc 51 can be inserted for reception in the storage space afforded by the aperture 66 in the second blank 53.

When it is desired to remove the "floppy" disc 51 from the pack, the user can place his or her thumb in one of the aligned pairs of lobes 64, 71 or 65, 72 and his or her forefinger in the other of the aligned pairs of lobes and remove the "floppy" disc 51 from the pack. Alternatively, the user can place his or her thumb in contact with the centre of the "floppy" disc and his or her forefinger in the appropriate one of the aligned pairs of lobes 64, 71 or 65, 72 (depending on whether the user is right-handed or left-handed) to engage a corner of the "floppy" disc and remove it from the pack.

If desired, a booklet or the like can be attached to the inner face of the front cover 54 of the completed pack. It is also possible to produce a "twin" pack comprising two packs as described above with their back covers 55 secured together.

Claims:-



1. A pack for a disc comprising a front cover and a back cover which are hingedly connected to each other, and a holder for the disc carried by the back cover, said holder being constituted by a plurality of sheets bonded together one on top of the other and to the back cover, said plurality of sheets comprising a top sheet formed with an aperture through which the disc is visible and at least one intermediate sheet between the top sheet and the back cover, the or each or at least one intermediate sheet being formed with an aperture to receive the disc, and the aperture in the top sheet including a main portion of generally semi-circular form to define a generally semi-circular opening through which a disc can be removed or inserted.
2. A pack as claimed in Claim 1, in which the aperture in the intermediate sheet comprises a main circular portion (within which the disc is received) and a pair of arcuate lobes which are aligned with corresponding arcuate lobes extending from the generally semi-circular opening in the top sheet, said aligned lobes being arranged to enable a user to contact the periphery of the disc to facilitate removal of the disc through said semi-circular opening.

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3. A pack as claimed in Claim 2, in which there is a cut-out or lobe at the centre of said semi-circular opening so that the user can contact the central portion of the disc when removing the disc through the opening.
4. A pack as claimed in any one of the preceding claims, in which the front cover, the back cover and the top sheet of the holder are produced from a single blank formed with appropriate fold lines, the blank being formed of card of characteristics such that, if required, printing can be applied to both surfaces of the blank.
5. A pack as claimed in Claim 4, in which there is a single apertured intermediate sheet interposed between the top sheet of the holder and the back cover.
6. A pack as claimed in Claim 5, in which said single apertured intermediate sheet is formed from card which is thicker than the card from which the remainder of the pack is formed.
7. A pack as claimed in Claim 5, in which said single apertured intermediate sheet is constituted by half of a larger sheet folded in two.
8. A pack as claimed in Claim 7, in which the aperture in said apertured intermediate sheet extends to the fold line of said larger sheet.

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9. A pack for a compact disc comprising first and second sheets hingedly connected together and a third sheet sandwiched between the first and second sheets, the third sheet being formed with an aperture which acts as a compartment to receive the disc, the second sheet acting as a closure for one side of the compartment and the first sheet being formed with an aperture through which the disc can be inserted into or removed from said compartment.
10. A pack as claimed in Claim 9, in which the third sheet is one of several sheets sandwiched between the first and second sheets.
11. A pack as claimed in Claim 9 or Claim 10, in which the aperture in the third sheet extends to an edge of the third sheet and a fourth sheet is hingedly connected to the third sheet for folding movement relative thereto about said edge.
12. A pack as claimed in Claim 11, in which the third and fourth sheets are formed from card which is substantially thicker than the card from which the first and second sheets are formed.

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