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(54) **Packaging for flat-shaped data storage media, method for manufacturing such a packaging**

Verpackung für flache Datenträger sowie Verfahren zu deren Herstellung

Emballage pour des supports de données plans, procédé pour produire un tel emballage

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Description

TECHNICAL FIELD

[0001] The invention relates to a packaging for flat-shaped data storage media, to a method for manufacturing a packaging for a flat-shaped data storage media as well as to a manufacturing means for manufacturing a packaging for flat-shaped data storage media.

BACKGROUND OF INVENTION

[0002] Flat-shaped data storage media such as e.g. compact discs (CD) and digital versatile discs (DVD) have become a versatile product. Often such media are disposable products that are only used once or a few times. Production costs of such media have decreased constantly in the past.

[0003] However, packaging of flat-shaped data storage media is necessary for transport or when sold to a consumer. A packaging must be cheap and the quality must be as high as possible such that a consumer accepts the product.

[0004] In the past, often sleeve shaped packaging were used, having a transparency embedded in a paper envelope. However, such packaging is expensive in production since many processing steps are necessary during manufacturing.

[0005] US-A-5,950,401 discloses a method of producing a printed product having a computer disk incorporated therein in which a glue is selectively deposited on a web of paper, products are fed onto a non-glued portion of the web and the web is folded around the deposited product. Upon folding, the glued portions of the web hold the web in the folded condition.

[0006] GB-A-1,109,877 discloses a packaging apparatus in which goods to be wrapped are introduced between two superposed films of heat sealable and heat shrinkable film. The apparatus comprises a heat sealing jaw which is adapted to completely encircle the goods and seal the films around the same.

[0007] US-A-3,349,502 discloses an apparatus for shrinking film-wrappings on articles with a pre-heat section in front of the shrink tunnel. Hot air is emitted upwardly from the pre-heat section to pre-shrink the film at the bottom of the package.

[0008] OS-A-2 208 986 discloses a method for packaging a product in which the product to be packaged is displaced between two foils, together with a stripe, and the foil is welded around the product.

[0009] JP-A-53-97801 discloses a jacket with a back portion comprising rough portions for eliminating the partial step caused at the ends of the back portion and a front portion when being sticked together.

[0010] It is an objective of the present invention to provide a packaging for flat-shaped data storage media that can be produced at a low cost. It is a further objective of the present invention to provide a packaging with a high consumer's acceptance.

[0011] Another objective of the present invention is to provide a method for manufacturing a low cost packaging that has a high consumer's acceptance.

SUMMARY OF THE INVENTION

[0012] In order to solve this objective, the present invention provides a packaging for flat-shaped data storage media according to claim 1. Further, the present invention provides a method for manufacturing a packaging for a flat-shaped data storage media according to claim 6. Preferred embodiments of the present invention are defined in dependent claims.

[0013] There may be provided a packaging for flat-shaped data storage media, e.g. disc-shaped data storage media such as e.g. compact discs (CD) or digital versatile discs (DVD), comprising: a first foil at least partly a first side of said media, a second foil covering or coating at least partly a second side of said media, which second side is opposite of said first side, and a weld joining or connecting together said first foil and said second foil. In this specification a "foil" may be a film. i.e. a thin sheet of material, transparency covering, coating or the like. The foil may or may not be metallic. Further, the foil can comprise thermoplastic material. The expression "weld" means a junction or connection or bond assuring that said first foil and said second foil are tied. i.e. held, together.

[0014] Said first side may be the top or bottom side of said media, in which case said second side is said bottom side and said top side, respectively. The top side of the media is the side where typically a printed label or the like is shown. The bottom side is the side from which data is being read when said media is in use.

[0015] At least one of said first and second foil is transparent. If e.g. the first side is the top side of the media and the first foil is transparent, a consumer may see a label or the like printed on the top side of the media. In this case the second foil may be of darker material which could be cheaper.

[0016] Said first foil covers said first side entirely and said weld is positioned on said second side. Because said first foil covers said first side entirely, the first side of said media is completely visible. In particular, also small printing typically found close to the edge of a media is completely visible. Also, because said weld is located on said second side, the consumer's acceptance is greatly increased, because the first side, e.g. the top side, of said media is completely visible and looks of high quality packaging. The weld may be positioned close to the edge on said second side.

[0017] The packaging, thus, may be seen as a wrapper or two part wrapper comprising two foils, said first foil substantially covering said first side and wrapping around a peripheral edge of the media and being joined to said second foil by said weld, the second foil covering only part of the opposing second side.

[0018] In a further embodiment, at least one of said first foil and said second foil is a heat shrinkable foil. This enables the pulling or tearing or drawing of said weld to a predefined side of said media. For example, if said second foil is a heat shrinkable foil that is connected to said first foil, and said second foil is heat shrunken, than the weld is drawn on said second side of said media. A further effect is that the first foil is being stretched and becomes wrinkle-free. Therefore, the first foil covers said first side nicely and said first side becomes completely visible. Further, the overall quality of the packaging is improved because a consumer is not disturbed by wrinkles or bad quality top side of the packaging.

[0019] In a further embodiment, said first foil has a first shrinking temperature and said second foil has a second shrinking temperature, which first and second shrinking temperature is the temperature at which shrinking of the respective foil occurs, wherein said first shrinking temperature and said second shrinking temperature are different. By choosing said first and second shrinking temperature differently, said first and second foil may be heat shrunken at the same time and the weld is being drawn, i.e. torn or pulled, onto a predefined side of said media.

[0020] Said second shrinking temperature may be lower than said first shrinking temperature. In this case, said second foil starts shrinking before said first foil, when said second and first foil are heat shrunken at the same time, and said weld is drawn on said second side and said first foil is stretched or drawn to become wrinkle-free (flat) in order to form packaging without wrinkles on said first or top side. As already noted, this is important for consumer's acceptance because a valuable packaging or cover for the media, in particular a CD or DVD, is provided. It is also possible, that only the first or second foil is a heat shrinkable foil. In case e.g. only said second foil is a heat shrinkable foil, said second foil may be heat shrunken and thereby drawing said weld on said second side and drawing said first foil wrinkle-free.

[0021] In a further embodiment, said weld may be a frangible weld. When said weld is frangible, i.e. breakable or fragile, the connection between said first foil and said second foil may be easily destroyed. Therefore, it is easy for a consumer to remove the packaging, i.e. it is easy to separate said first and second foil and access the media quickly.

[0022] The method for manufacturing a packaging for a flat-shaped data storage media comprises the steps of: providing a first foil, providing a second foil, positioning said media between said first and second foil, i.e. sandwiching said media between said first and second foil, and welding together said first and second foil, i.e. connecting or fixing said first and second foil.

[0023] Said welding forms a weld, said first foil covers at least partly a first side of said media and said second foil covers at least partly a second side of said media, and said second foil is heat shrunken such that said weld is positioned on said second side.

[0024] In an embodiment, at least one of said first and second foil may be a transparent foil or transparency.

[0025] In a further embodiment, said method may comprise cutting said first and second foil in the shape of said media. In this case, no material, i.e. foil, is wasted. In other words, said packaging makes optimal use of the available resources and does not waste any foil or other material. Prior art packaging for disc-shaped media often is of a rectangular or square shape, in which case material is wasted, because the packaging is in fact larger than the disc.

[0026] In a further embodiment, said cutting and welding may be done at the same time. This may be realized by using a stamp with a heat cutter that cuts the first and second foil in the shape of said media at the same time when welding together said first and second foil.

[0027] In a further embodiment, said welding may be performed at predefined positions such that a frangible weld is realized. For example, welding is only performed at equidistant positions close to the edge of said first and second foil.

[0028] In a further embodiment, said method further comprises heat shrinking said first foil and/or said second foil. When e.g. said second foil is heat shrunken and said first foil is not heat shrunken, than said weld is drawn onto said second side and said first foil may be drawn or pulled wrinkle-free. When said second foil is heat shrunken, than said weld is positioned on said second side of said media.

[0029] In a further embodiment, said first foil has a first shrinking temperature and said second foil has a second shrinking temperature, which first and second shrinking temperature is the temperature at which shrinking of the respective foil occurs, wherein said second shrinking temperature is lower than said first shrinking temperature, and said first and said second foil are heat shrunken at the same time. Due to the different shrinking temperatures of the first and second foil, the weld is drawn onto said second side because the shrinking of said second foil is e.g. stronger and/or occurs prior to the shrinking of said first foil. When said second shrinking temperature of said second foil is lower than said first shrinking temperature of said first foil, this may have the effect that when both foils are heat shrunken at the same temperature, than the shrinking of said second foil is stronger, which leads to the above explained desired effect of drawing the weld on said second side and drawing said first foil wrinkle-free.

[0030] In a further embodiment, said second foil is heat shrunken prior to said first foil. This may be e.g. realized by a pre-shrinking unit that e.g. heats only one side of the packaging with enclosed media. This is e.g. useful when both foils have the same shrinking temperature. In this case, when said second foil is heat shrunken prior to said first foil using a pre-shrinking unit, than the weld gets positioned on said second side and said first foil is drawn wrinkle-free.

[0031] A manufacturing means for manufacturing a packaging for flat-shaped data storage media comprises

a welding means for welding a first foil and a second foil sandwiching a flat-shaped data storage media.

[0032] In a preferred embodiment, said welding means is a stamp adapted for cutting said first and second foil in the shape of said media. In particular, said stamp may have a round-shape in the form of a ring of the size of a disc-shaped media. The edge of said stamp used for cutting may have a shape enabling cutting and welding at the same time.

[0033] In a preferred embodiment, said manufacturing means may comprise a first shrinking means for heat shrinking either said first foil or said second foil. Said first shrinking means may be a pre-shrinking unit that only heats one foil on one predefined side of said media. For example, only the bottom side of the media with foil cover is heated.

[0034] In a further embodiment, said manufacturing means may comprise a second shrinking means for heat shrinking said first and second foil at the same time.

[0035] This second shrinking means may e.g. used in case the shrinking temperatures of said first and second foil are different.

[0036] All different aspects of the present invention as set out above and further elucidated below might be combined in any way. The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate an exemplary embodiment of the invention, and, together with a general description given above, and the detailed description of the embodiments given below serve to explain the principle of the invention, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

[0037]

Fig. 1 shows a disc-shaped media in a packaging from the top side;

Fig. 2 shows the disc-shaped media with the packaging from the bottom side;

Fig. 3 shows a sectional view X of the packaging and disc-shaped media,

Fig. 4 shows the bottom side of said disc-shaped media with packaging comprising a frangible weld,

Fig. 5 shows method steps for manufacturing a packaging, and

Fig. 6 shows a manufacturing means for manufacturing a packaging.

DETAILED DESCRIPTION OF THE INVENTION

[0038] Fig. 1 shows a disc-shaped media 1 as flat-shaped data storage media. The disc-shaped media 1 may be any standard disc-shaped media such as e.g. a compact disc (CD) or digital versatile disc (DVD) or BlueRay disc.

[0039] Fig. 2 shows the top side of said disc-shaped media 1 having a printing 2. Said printing 2 comprises a first text part "SONY" and a second text part containing small printing close to the edge of said disc-shaped media 1. Said top side of said disc-shaped media 1 is completely covered by a first foil 3. Said first foil 3 is transparent, and therefore said printing 2 is visible through said first foil 3. Also, the center hole in the middle of said disc-shaped media 1 is visible. It is noted that said first foil 3 is wrinkle-free, and therefore, said printing 2 is visible without any disturbances.

[0040] Fig. 2 shows the bottom side of said disc-shaped media 1. Said bottom side is the side from which data of said disc-shaped media 1 is read.

[0041] Said bottom side of said disc-shaped media 1 is almost completely covered by a second foil 4. Said second foil 4 is also transparent, and therefore the center hole of said disc-shaped media 1 is visible.

[0042] Further, said second foil 4 is fixed to, i.e. connected to said first foil 3 by a weld 5. The weld 5 is completely located on the bottom side of said disc-shaped media 1 close to the edge 6 of said disc-shaped media 1.

[0043] In a first embodiment, said first foil 3 and said second foil 4 are heat shrinkable foils, wherein the shrinking temperature of said second foil 4 is lower than the shrinking temperature of said first foil 3. Therefore, when manufacturing the packaging 7 comprising said first foil 3, said second foil 4 and said weld 5, said first foil 3 and said second foil 4 may be heat shrunken at the same time at a temperature of e.g. 200 to 400°C. If the heat shrinking takes place at around e.g. 300°C, said second foil 4 may be shrunken stronger than said first foil 3 due to the lower shrinking temperature of said second foil. Therefore, said second foil 4 contracts, i.e. shrinks, stronger and/or faster than said first foil 3, thereby drawing said weld 5 onto the bottom side of said disc 1 and towards the centre of the disc on the bottom side.

[0044] When manufacturing said packaging 7, said first foil 3 and said second foil 4 may in the beginning be provided equal in size and shape. However, due to the different shrinking temperatures, when heat shrinking said first foil 3 and said second foil 4, said second foil 4 may become smaller in size/shape than said first foil 3. Thus, said weld 5 is drawn on the bottom side of said disc-shaped media 1 and said first foil 3 is drawn, i.e. stretched to become wrinkle-free.

[0045] In a second embodiment, said first foil 3 may not be heat shrinkable and said second foil 4 may be heat shrinkable. In this case, when both, said first foil 3 and said second foil 4 are heated, only said second foil 4 starts shrinking, thereby drawing said weld 5 on the bottom side of said disc-shaped media 1. Further, due to the tension exposed to said first foil 3, said first foil 3 is stretched and drawn wrinkle-free.

[0046] In a third embodiment, said first foil 3 and said second foil 4 are heat shrinkable, wherein the shrinking

temperature of both said first foil 3 and said second foil 4 are equal. In this case, when manufacturing said packaging 7, said second foil 4 is heat shrunken prior to said first foil, e.g. using a pre-shrinking unit. When pre-shrinking said second foil 4, said weld 5 is drawn onto the bottom side of said disc-shaped media 1. Further, said first foil 3 becomes wrinkle-free.

[0047] Fig. 3 shows a sectional view X of Fig. 1. As can be seen, said packaging 7 comprising or formed by said first foil 3, said second foil 4 and said weld 5 encloses the disc-shaped media 1 entirely. Therefore, said disc-shaped media 1 is completely protected from any environmental hazards, such as dust or the like.

[0048] Fig. 4 shows a frangible weld 8 connecting said first foil 3 and said second foil 4. Said frangible weld 8 comprises welded portions 9 and non-welded portions 10. Said welded portions 9 and non-welded portions 10 may be equidistant. It is also possible that said welded portions 9 are much smaller than shown in Fig. 4. It is also possible that the packaging contains only one non-welded portion of a size such that a consumer may conveniently reach below said first or second foil with a finger in order to conveniently open said packaging.

[0049] Said frangible weld 8 may be easily destroyed, i.e. said first foil 3 and said second foil 4 may be torn apart easily by a consumer. Therefore, a consumer may easily remove said packaging 7.

[0050] It is noted that said first foil 3 and said second foil 4 may e.g. be a polyolefin film having a thickness of e.g. 11 to 40 μm.

[0051] Fig. 5 shows a means for manufacturing said packaging 7. During manufacturing of said packaging 7, said disc-shaped media 1 or a plurality of disc-shaped media 1 are positioned on an endless top foil 11, also referred to as top web. The disc-shaped media 1 is thereby e.g. positioned on said endless top foil 11 with the bottom side up. Then, an endless bottom foil 12, also referred to as bottom web, is positioned over said disc-shaped media 1.

[0052] Said manufacturing means 13 comprises means for transporting said endless top foil 11, said disc-shaped media 1 and said endless bottom foil 12 into a processing direction 14 (said transporting means may e.g. be a conveyor belt or the like, which is not shown in Fig. 5).

[0053] Said manufacturing means 13 further comprises a stamp 15 comprising a heat cutter. The stamp 15 may be realized as a ring in the form of said disc-shaped media 1. The bottom part of said stamp 15 may e.g. be heatable.

[0054] When said disc-shaped media 1 sandwiched between said endless top foil 11 and said endless bottom foil 12 gets positioned under said stamp 15, said stamp 15 may be lowered down, such that said stamp 15 surrounds the outer edge of the disc-shaped media 1, thereby cutting out said first foil 3 and said second foil 4 from said endless top foil 11 and said endless bottom foil 12, respectively. Further, because said stamp 15 is heated, it is possible to weld together said first foil 3 and said second foil 4 at the same time of cutting.

[0055] Fig. 5, thus, shows the cutting of the first foil 3 and the second foil 4 from a respective web of material (endless top/bottom foil).

[0056] Said manufacturing means 13 further comprises a pre-shrinking unit 16 which radiates heat towards the disc-shaped media 1 sandwiched between said first foil and said second foil. It is important to note that said pre-shrinking unit 16 only heats one side of the disc-shaped media being covered by a foil. In the embodiment of Fig. 5, said pre-shrinking unit 16 radiates heat onto the bottom side of said disc-shaped media 1 being covered by said second foil 4, which has been cut out from said endless bottom foil 12.

[0057] The heat radiated from said pre-shrinking unit 16 leads to said second foil 4 being shrunk, wherein said first foil 3 on the top side of said disc-shaped media does not get shrunk. This leads to the weld 5 being produced by said stamp 15 to be drawn onto the bottom side of said disc-shaped media 1. Further, said pre-shrinking leads to the first foil 3 being drawn wrinkle-free.

[0058] After passing the pre-shrinking unit 16, the disc-shaped media 1 may be transported into a shrink tunnel 17.

[0059] The shrink tunnel 17 further shrinks said first foil 3 and said second foil 4 thereby further reducing any wrinkles that might still be present on said first foil 3 or said second foil 4 after pre-shrinking.

[0060] Fig. 6 illustrates steps for manufacturing said packaging 7.

[0061] In a first step S1, at least one disc-shaped media 1 is positioned on said endless top foil 11.

[0062] In a second step S2, said endless bottom foil 12 is put on said disc-shaped media 1.

[0063] In a third step S3, said stamp 15 welds and cuts the endless foils around the discs, thereby realizing the packaging consisting of said first foil 3, said second foil 4 and said weld 5.

[0064] In a fourth step S4, said second foil 4 on the bottom side of said disc-shaped media 1 is pre-shrunken using e.g. said pre-shrinking unit 16.

[0065] In a fifth step S5, said disc-shaped media 1 being enclosed by said first foil 3 and said second foil 4 pass through said shrink tunnel 17.

Claims

1. Packaging for flat-shaped data storage media (1), comprising:

   - a first foil (3) covering a first side of said media (1) entirely,
   - a second foil (4) covering at least partly a second side of said media (1), which second side is opposite of said first side, and
   - a weld (5, 8) joining together said first foil (3)

and said second foil (4), wherein said second foil (4) is a heat shrunken foil and wherein said weld (5, 8) is positioned on said second side.

2. Packaging according to claim 1, wherein at least one of said first and second foil is transparent.

3. Packaging according to claim 1 or 2, wherein said first foil (3) has a first shrinking temperature and said second foil (4) has a second shrinking temperature, which first and second shrinking temperature is the temperature at which shrinking of the respective foil occurs, wherein said first shrinking temperature and said second shrinking temperature are different.

4. Packaging according to claim 3, wherein said second shrinking temperature is lower than said first shrinking temperature.

5. Packaging according to any one of the preceding claims, wherein said weld is a frangible weld (8).

6. Method for manufacturing a packaging for a flat-shaped data storage media (1), comprising the steps of:

- providing a first foil (3),
- providing a second foil (4),
- positioning said media (1) between said first (3) and second (4) foil, and
- welding together said first (3) and second (4) foil, wherein said welding forms a weld (5, 8) and wherein said first foil (3) covers at least partly a first side of said media (1) and said second foil (4) covers at least partly a second side of said media (1), and
- said second foil (4) is heat shrunken such that said weld (5, 8) is positioned on said second side.

7. Method according to claim 6, wherein at least one of said first (3) and second foil (4) is transparent.

8. Method according to claim 6 or 7, wherein said method further comprises cutting said first (3) and second (4) foil in the shape of said media (1).

9. Method according to claim 8, wherein said cutting and welding is done at the same time.

10. Method according to any one of claims 6 to 9, wherein said welding is performed at predefined positions such that a frangible weld (8) is realized.

11. Method according to any one of claims 6 to 10, wherein said method further comprises heat shrinking said first foil (3) and said second foil (4).

12. Method according to any of claims 6 or 11, wherein said first foil (3) has a first shrinking temperature and said second foil (4) has a second shrinking temperature, which first and second shrinking temperature is the temperature at which shrinking of the respective foil occurs, wherein said second shrinking temperature is lower than said first shrinking temperature, and said first (3) and second (4) foil are heat shrunken at the same time.

13. Method according to claim 6 or 12, wherein said second foil (4) is heat shrunken prior to said first foil (3).

14. Printed paper publication, comprising a flat-shaped data storage media (1) having a packaging according to any one of claims 1 to 5.

Patentansprüche

1. Verpackung für ein flaches Datenspeichermedium (1), mit:

- einer ersten Folie (3), welche eine erste Seite des Mediums (1) vollständig abdeckt,
- einer zweiten Folie (4), welche eine zweite Seite des Mediums (1) zumindest teilweise abdeckt, wobei die zweite Seite der ersten Seite gegenüberliegt, und
- einer Fügenaht (5, 8), welche die erste Folie (3) und die zweite Folie (4) aneinander fügt, wobei die zweite Folie (4) eine wärmegeschrumpfte Folie ist und wobei die Fügenaht (5, 8) an der zweiten Seite angeordnet ist.

2. Verpackung nach Anspruch 1,
wobei mindestens eine der ersten und zweiten Folie transparent ist.

3. Verpackung nach einem der Ansprüche 1 oder 2,
wobei die erste Folie (3) eine erste Schrumpftemperatur besitzt und die zweite Folie (4) eine zweite Schrumpftemperatur besitzt, wobei die erste und die zweite Schrumpftemperatur die Temperatur ist, bei welcher ein Schrumpfen der jeweiligen Folie auftritt, wobei die erste Schrumpftemperatur und die zweite Schrumpftemperatur unterschiedlich sind.

4. Verpackung nach Anspruch 3,
wobei die zweite Schrumpftemperatur niedriger ist als die erste Schrumpftemperatur.

5. Verpackung nach einem der vorangehenden Ansprüche,
wobei die Fügenaht eine zerbrechbare Fügenaht (8) ist.

6. Verfahren zum Herstellen einer Verpackung für ein

flaches Datenspeichermedium (1), mit den Schritten:

- Bereitstellen einer ersten Folie (3),
- Bereitstellen einer zweiten Folie (4),
- Anordnen des Mediums (1) zwischen der ersten (3) und der zweiten (4) Folie und
- Zusammenfügen der ersten (3) und zweiten (4) Folie, wobei das Zusammenfügen eine Fügenaht (5, 8) ausbildet und wobei die erste Folie (3) eine erste Seite des Mediums (1) zumindest teilweise abdeckt und die zweite Folie (4) eine zweite Seite des Mediums (1) zumindest teilweise abdeckt, und
- wobei die zweite Folie (4) derart wärmegeschrumpft wird, dass die Fügenaht (5, 8) auf der zweiten Seite angeordnet wird.

7. Verfahren nach Anspruch 6, wobei mindestens eine der ersten (3) und zweiten (4) Folie transparent ist.

8. Verfahren nach einem der Ansprüche 6 oder 7, wobei das Verfahren ferner ein Zuschneiden der ersten (3) und der zweiten (4) Folie in die Form des Mediums (1) aufweist.

9. Verfahren nach Anspruch 8, wobei das Zuschneiden und das Zusammenfügen zur gleichen Zeit durchgeführt werden.

10. Verfahren nach einem der Ansprüche 6 bis 9, wobei das Zusammenfügen an vorbestimmten Stellen derart durchgeführt wird, dass eine zerbrechbare Fügenaht (8) realisiert wird.

11. Verfahren nach einem der Ansprüche 6 bis 10, wobei das Verfahren ferner ein Wärmeschrumpfen der ersten Folie (3) und der zweiten Folie (4) aufweist.

12. Verfahren nach einem der Ansprüche 6 oder 11, wobei die erste Folie (3) eine erste Schrumpftemperatur besitzt und die zweite Folie (4) eine zweite Schrumpftemperatur besitzt, wobei die erste und die zweite Schrumpftemperatur die Temperatur ist, bei welcher ein Schrumpfen der jeweiligen Folie auftritt, wobei die zweite Schrumpftemperatur niedriger ist als die erste Schrumpftemperatur und wobei die erste (3) und die zweite (4) Folie zur gleichen Zeit wärmegeschrumpft werden.

13. Verfahren nach Anspruch 6 oder 12, wobei die zweite Folie (4) vor der ersten Folie (3) wärmegeschrumpft wird.

14. Bedruckte Papierpublikation, mit einem flachen Datenspeichermedium (1) mit einer Verpackung nach einem der Ansprüche 1 bis 5.

Revendications

1. Emballage pour des supports de stockage de données de forme plate (1), comportant :

- un premier film (3) recouvrant entièrement un premier côté desdits supports (1),
- un deuxième film (4) recouvrant au moins en partie un deuxième côté desdits supports (1), lequel deuxième côté est à l'opposé dudit premier côté, et
- une soudure (5, 8) reliant ensemble ledit premier film (3) et ledit deuxième film (4), ledit deuxième film (4) étant un film thermo-rétracté et ladite soudure (5, 8) étant positionnée sur ledit deuxième côté.

2. Emballage selon la revendication 1, dans lequel au moins un desdits premier et deuxième films est transparent.

3. Emballage selon la revendication 1 ou 2, dans lequel ledit premier film (3) a une première température de rétraction et ledit deuxième film (4) a une deuxième température de rétraction, lesdites première et deuxième températures de rétraction étant la température à laquelle la rétraction du film respectif se produit, ladite première température de rétraction et ladite deuxième température de rétraction étant différentes.

4. Emballage selon la revendication 3, dans lequel ladite deuxième température de rétraction est plus basse que ladite première température de rétraction.

5. Emballage selon l'une quelconque des revendications précédentes, dans lequel ladite soudure est une soudure pouvant être cassée (8).

6. Procédé de fabrication d'un emballage pour des supports de stockage de données de forme plate (1), comportant les étapes consistant à :

- prévoir un premier film (3),
- prévoir un deuxième film (4),
- positionner lesdits supports (1) entre lesdits premier (3) et deuxième (4) films, et
- souder ensemble lesdits premier (3) et deuxième (4) films, ladite soudure formant une soudure (5, 8) et ledit premier film (3) recouvrant au moins en partie un premier côté desdits supports (1) et ledit deuxième film (4) recouvrant au moins en partie un deuxième côté desdits supports (1), et
- ledit deuxième film (4) est thermo-rétracté de

telle sorte que ladite soudure (5, 8) est positionnée au niveau dudit deuxième côté.

7. Procédé selon la revendication 6, selon lequel au moins un desdits premier (3) et deuxième (4) films est transparent.

8. Procédé selon la revendication 6 ou 7, selon lequel ledit procédé comporte en outre le fait de découper lesdits premier (3) et deuxième (4) films sous la forme desdits supports (1).

9. Procédé selon la revendication 8, selon lequel ledit découpage et ladite soudure sont réalisés en même temps.

10. Procédé selon l'une quelconque des revendications 6 à 9, selon lequel ladite soudure est réalisée dans des positions prédéfinies de telle sorte qu'une soudure pouvant être cassée (8) est réalisée.

11. Procédé selon l'une quelconque des revendications 6 à 10, selon lequel ledit procédé comporte en outre le fait de thermo-rétraction ledit premier film (3) et ledit deuxième film (4).

12. Procédé selon l'une quelconque des revendications 6 ou 11, selon lequel ledit premier film (3) a une première température de rétraction et ledit deuxième film (4) a une deuxième température de rétraction, les première et deuxième températures de rétraction étant la température à laquelle la rétraction du film respectif se produit, ladite deuxième température de rétraction étant plus basse sue ladite première température de rétraction, et lesdits premier (3) et deuxième (4) films sont thermo-rétractés en même temps.

13. Procédé selon la revendication 6 ou 12, selon lequel ledit deuxième film (4) est thermo-rétracté avant ledit premier film (3).

14. Publication de papier imprimée, comportant des supports de stockage de données de forme plate (1) ayant un emballage selon l'une quelconque des revendications 1 à 5.

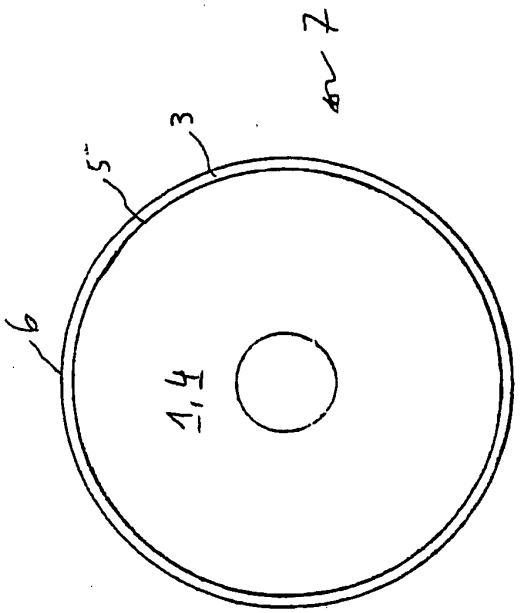


Fig. 2

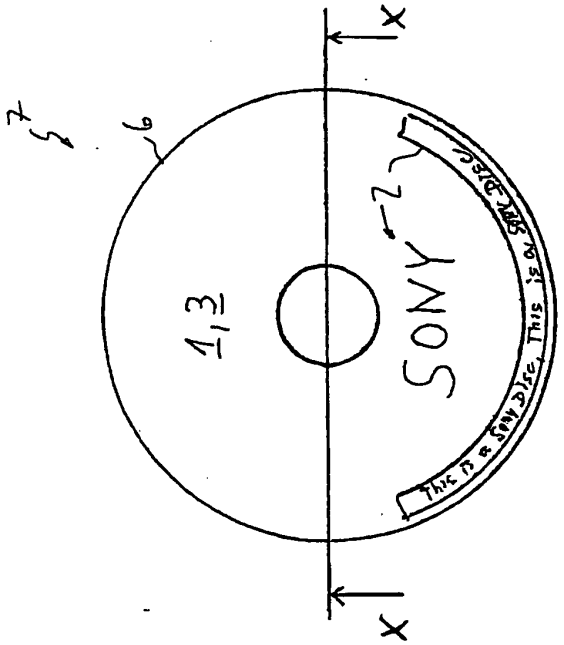


Fig. 1

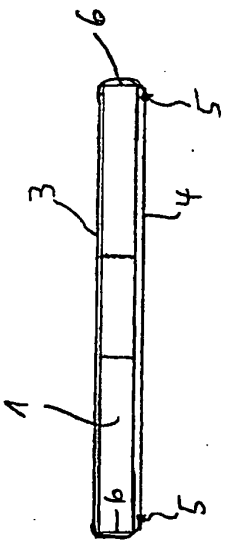
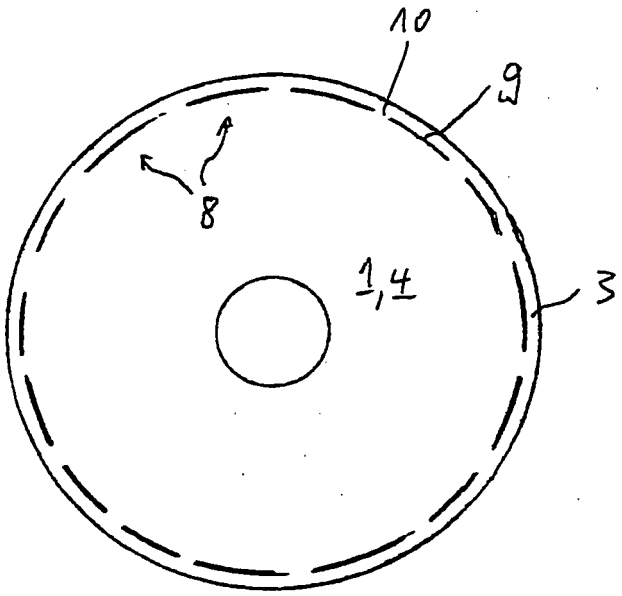


Fig. 3

Fig. 4



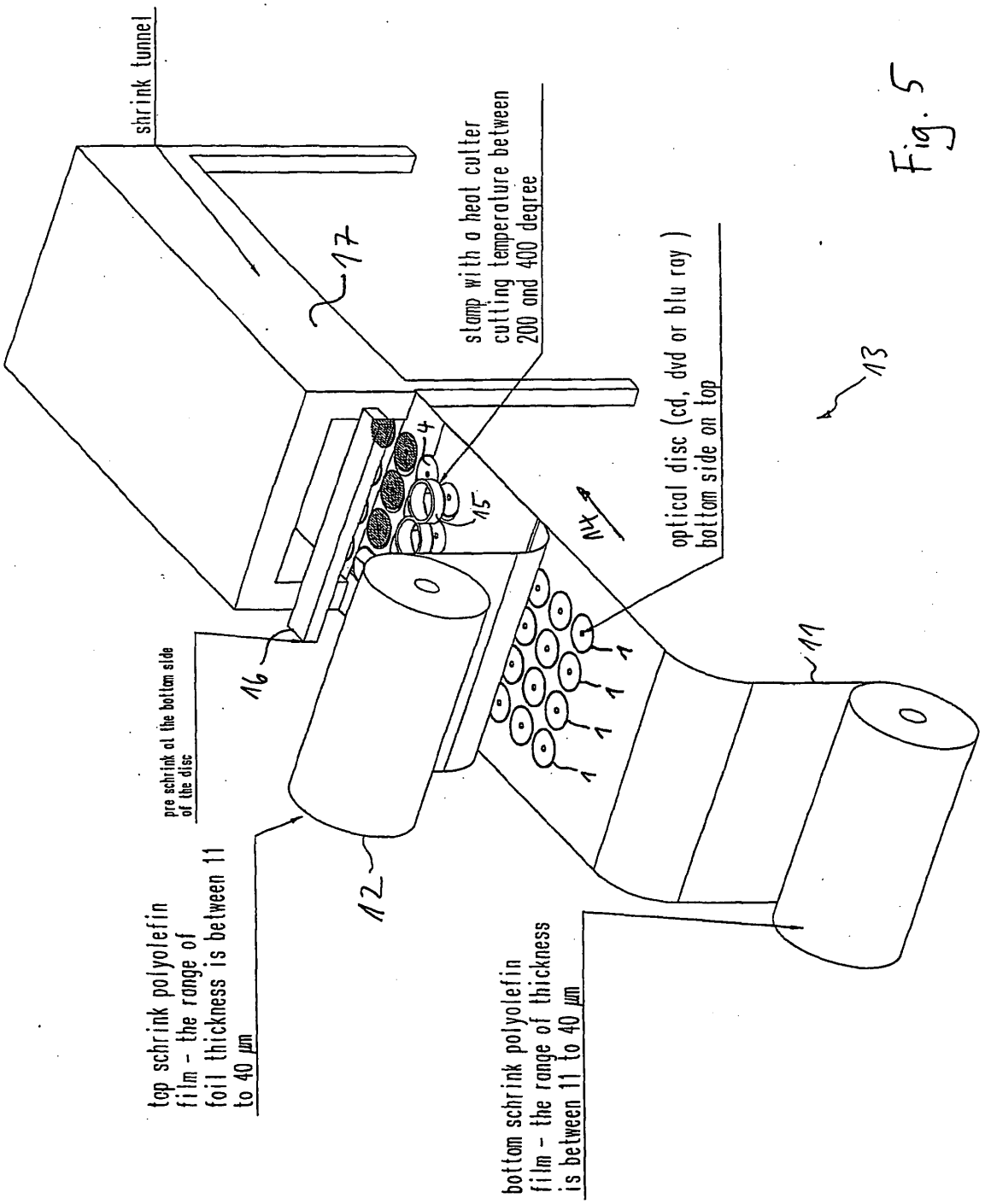

shrink tunnel
17
stamp with a heat cutter cutting temperature between 200 and 400 degree
4
15
16
pre schrink of the bottom side of the disc
optical disc (cd, dvd or blu ray) bottom side on top
13
11
12
top schrink polyolefin film - the range of foil thickness is between 11 to 40 µm
bottom schrink polyolefin film - the range of thickness is between 11 to 40 µm

Fig. 5

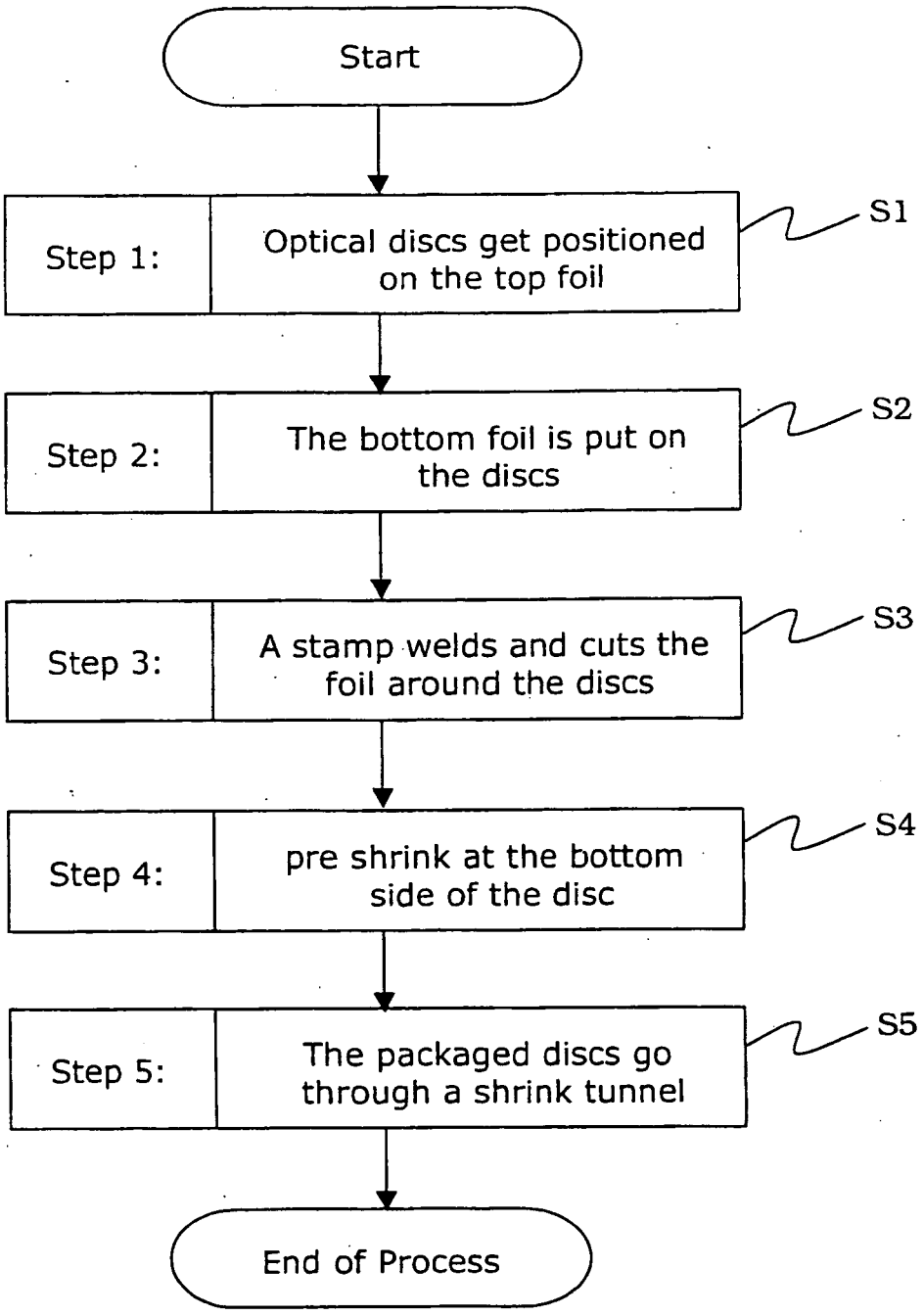

Start
Step 1:
Optical discs get positioned on the top foil
S1
Step 2:
The bottom foil is put on the discs
S2
Step 3:
A stamp welds and cuts the foil around the discs
S3
Step 4:
pre shrink at the bottom side of the disc
S4
Step 5:
The packaged discs go through a shrink tunnel
S5
End of Process

Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 5950401 A **[0005]**
- GB 1109877 A **[0006]**
- US 3349502 A **[0007]**
- JP 53097801 A **[0009]**