A retainer hub for securing compact discs and digital video discs comprises in one embodiment a graduated central tier, a graduated outer tier and a plurality of prongs integral with the central tier that form a substantially concentric mounting post having a base and a crown, wherein the diameter of the mounting post crown is greater than the diameter of the mounting post base. A tapered edge is provided on the perimeter of the outer tier to promote the partial overlap of an adjacent retainer hub upon contact during automated processing. Advantageously, the diameter of the mounting post crown is capable of engaging a compact disc with sufficient pressure to prevent the compact disc from rotating freely about the mounting post, and also capable of permitting the free rotation of a digital video disc mounted on the post while securing the digital video disc to the hub.
FIELD OF THE INVENTION

[0001] The invention relates to a device for retaining discs. In particular, the invention relates to a retainer hub for storing and shipping compact discs and digital video discs, the retainer hub including a non-cylindrical mounting post and multiple tiers characterized by smooth transitions between adjacent tiers.

BACKGROUND OF THE INVENTION

[0002] The advances in media technology coupled with the popularity of sound and video recording has resulted in the packaging and shipping of large numbers of media items, such as compact discs (CD) and digital video discs (DVD). Consequently, the packaging industry is attempting to meet increased demand by providing improved packaging tailored to CD and DVDs, and developing more efficient methods of packaging the same.

[0003] As used herein, the term CD refers to a stored media item made of single piece construction. Further, the term DVD refers to a stored media item made of multi-piece construction. Specifically, a DVD includes two discs adhered together, thus increasing storage capacity.

[0004] As known to those familiar with the art, CDs are typically used to record music, whereas DVDs are typically used to record video, sound, and data (e.g., movies, games, video, and software). Conventional packaging for CDs usually includes central hubs of varying shapes that are integral with a tray. The tray and hub combination are typically secured in a plastic container commonly referred to as a "jewel case." The hubs are typically comprised of eight to twelve upwardly projecting prongs that form a mounting post for retaining the CD or DVD. More specifically, a conventional 12-prong post for retaining CDs that is used in a majority of jewel cases includes a cylindrical post having a diameter of between about 15.25 and 15.35 millimeters (mm). The cylindrical post provides a mount for securing the media item. The central hole of the CD or DVD receives the mounting post when the media item is pressed against the upwardly projecting prongs. Upon mounting the media item on the hub, the post frictionally holds a standard CD, which has a center hole diameter of 15.00 mm. It is particularly relevant that most conventional posts for retaining media items have a constant diameter. In comparison, conventional packaging for DVDs includes centralized hubs that are integral with a box structure or similar retaining structure.

[0005] A common method for packaging CDs into jewel cases includes advancing a bottom portion of a jewel case along an automated conveyor, securing a tray onto the bottom portion of the jewel case, mounting the CD onto a mounting post integral with the tray, and pivotally securing an upper portion of a jewel case to the bottom portion, thereby forming a CD packaged in a jewel case.

[0006] An alternative manner of packaging and shipping CDs and DVDs includes the automated placement of such discs into packaging blanks. It will be understood that as used herein the term "blanks" may include cardboard, rigid paper, or similar products made of cardboard. It will be further understood that the terms "automated processing" and "transfer operations" generally refer to the advancement of a hub or blank along an automated production line. Several common packaging materials for CDs and DVDs in present use include a single layer of rigid paper or a combination of various layers of paper. When used to ship CDs or DVDs, these blanks are commonly referred to as "mailing sleeves" or "sleeves". As applied to the media industry, the sleeves are often used to ship complimentary CDs and DVDs containing software for online service providers. Alternatively, sleeves are used to ship CDs or DVDs containing promotional presentations of a merchant’s goods or services to potential or existing customers. Typical sleeves are formed from flexible polyester film and provide little to no protection during shipment.

[0007] Another form of sleeve for shipping CDs and DVDs is comprised of a flat blank of cardboard divided into equal first and second portions by a fold line. A scored line typically defines the fold line. The flexible paper sleeve likewise provides little protection to CDs or DVDs contained therein. Unfortunately, the likelihood of damaging a CD or DVD is increased when shipping the media items in the flexible sleeves lacking a retaining hub. Specifically, the CDs or DVDs bend and snap. The more efficient methods for packaging CDs or DVDs into sleeves are automated. One method for packaging includes the following steps: advancing blanks along a conveyor to a scoring position, scoring the blank along a center line dividing the blank into two equal portions, advancing the scored blank to an adhering position, applying adhesive to edges of the sleeve positioned perpendicular to the fold line, advancing the blank to a folding position, folding the blank along its score line such that the equal portions are folded against and adhered to one another to thereby form a sleeve, advancing the sleeve to a media item inserting position, laterally inserting the CD or DVD into the sleeve, and subsequently sealing the remaining open end.

[0008] Unfortunately, the lateral insertion of CDs or DVDs (i.e., coplanar movement) into the open end or slit in the sleeve is fraught with difficulty. Stated differently, the automated process of laterally inserting CDs and DVDs leads to misalignment and misplacement, thus resulting in breakage of the media item or complete failure to place the media item into the sleeve. In the event that the media item is broken or misplaced, the production line must be halted. Furthermore, the likely occurrence of misplaced media items, thus resulting in empty sleeves, requires increased vigilance on the part of quality control managers. As described, such methods for packaging media items into sleeves fail to provide a means for retaining the CD or DVD in a particular position within the sleeve, such as a tray or hub. As a result, the media item may shift from side to side and increase the likelihood of coplanar (i.e., side impact) forces affecting the media item. For example, a portion of a CD that has shifted to an outermost edge of the sleeve will absorb the brunt of any lateral impact with a front stop in an automated packaging or mail processing line. Side impacts tend to scratch, scuff, or fracture the CD or place (i.e., shift) the two discs forming the DVD, thus rendering both inoperable. The two discs forming a DVD likewise tend to shift during shipment on warm days. Furthermore, media items shipped in conventional cardboard or polyester film sleeves lacking a retaining means will also absorb load forces exerted upon the sleeve because of the lack of separation between the sleeve and the media item. The vertical load forces exerted upon packaged sleeves that are
bundled or stacked for shipment tend to fracture the relatively fragile CDs and DVDs because both sides of the media items are immediately adjacent the opposing side-walls. For this reason, it is desirable to provide a retaining hub positioned at the center of the sleeve to prevent the CD or DVD from shifting to the outer edges of the sleeve. This minimizes the effect of lateral impact forces on the edges of the media item during shipment. Furthermore, a retaining hub secured to the interior of the sleeve will provide separation between the top and bottom of the media item and the top and bottom of the sleeve, and thereby minimize any load forces acting upon the media item.

[0009] The automated method for packaging sleeves may include a second conveyor for transferring a plurality of hubs from a holding position to an inserting position adjacent the first conveyor that advances the blanks. The most significant problem associated with automated placement of the hubs on the blank is the inverting (i.e., flipping) of hubs as they bunch together. Specifically, as the plurality of hubs travel along the second conveyor, they bunch together and the vertical edges of the hubs—resting at a 90° angle with respect to the conveyor surface—cause the hubs to flip over upon impact with one another. An inverted hub wherein the mounting post projects downwardly with respect to the conveyor is incapable of retaining a media item if secured to a blank in such a fashion. As known to those skilled in the art of packaging, the inverting of hubs is particularly prevalent in vibratory delivery mechanisms wherein the plurality of hubs are advanced along an inclined vibrating surface.

[0010] The prior art reveals central hubs that are integrated into trays and jewel cases, and thus are incapable of incorporation into automated packaging systems that utilize sleeves. Furthermore, the hubs disclosed in the prior art fail to teach hubs having tapered edges and graduated tiers having smooth transitions for reducing the inverting of hubs along a conveyor.

[0011] For example, U.S. Pat. No. 5,772,021 to Bolembaugh et al. describes a central hub that includes deformable segments having a base portion integral with a raised platform, a stem extending upwardly from the base portion, and breakaway retaining hooks that shear off the stem when a CD is removed. Bolembaugh describes an outer edge of the base portion and a raised platform that are defined by 90° angles. As disclosed, the '021 patent fails to disclose a hub having multiple graduated tiers defined by smooth transitions or tapered edges that are capable of being incorporated into an automated packaging process.

[0012] U.S. Pat. No. 5,785,172 to Bolognia et al. discloses a storage tray for retaining multiple compact discs. Specifically, the '172 patent describes a circular hub having two sets of fingers projecting upwardly from a storage tray whereby alternate fingers are higher than the other fingers. The support rim of the '172 patent that forms part of the tray fails to disclose a tapered edge. As identified, a tapered edge is required of hubs to be used in high-speed automation to prevent the inverting of hubs that are bunched together. Moreover, the '172 patent fails to disclose the use of a hub capable of retaining both CDs and DVDs.

[0013] Finally, U.S. Pat. No. 5,856,651 to Krummenacher describes a disc holder in a jewel case for retaining compact discs. The disc holder is comprised of a tray including a hub formed from Z-shaped retaining tongues that is surrounded by an annular supporting bead forming part of a rectangular tray. Nevertheless, the hub and tray combination of the '651 patent fails to disclose a tapered outer edge and graduated tiers decreasing in height from the center of the hub to the perimeter of the tray. In other words, the outer tier of the hub is higher than the lower portion of the tongue adjacent the retaining post. Accordingly, the '651 assembly is incapable of being incorporated into an automated processing line wherein circular hubs are advanced along a conveyor for placement onto a blank.

[0014] Thus, the prior art described above fails to disclose a hub that is capable of retaining CDs as well as DVDs. Further, the prior art fails to describe a hub that is capable of retaining CDs in place without an associated structure (e.g., jewel case). With respect to DVDs, the prior art fails to disclose a hub that is capable of retaining a DVD without pressure on its two discs which are susceptible to displacement during shipping or handling. Moreover, conventional hubs lack tapered edges for minimizing the inverting of hubs during automated processing. Thus, the hub and tray combinations disclosed in the prior art are not adaptable for use in the automated placement of media items into sleeves.

[0015] Therefore, there is a need for a multi-purpose hub capable of retaining CDs or DVDs.

[0016] There is also a need for expediting the packaging of CDs and DVDs into sleeves.

[0017] There is a further need for a multi-purpose hub capable of preventing the inverting of bunched hubs during transfer operations.

[0018] Further still, there is a need for a multi-purpose hub that promotes the partial stacking or shingling effect among hubs advancing along a conveyor in an automated production line.

[0019] Yet another need is for a multi-purpose hub that promotes direct placement of a CD on a blank such that the hub prevents rotation of the CD about the mounting post, yet minimizes the stresses on the central hole of the media item.

[0020] There is a further need for a multi-purpose hub that permits the rotation of a DVD, yet prevents the DVD from departing the hub during shipment.

[0021] There is still a further need for a multi-purpose hub that retains a DVD without pressure on the center hole while securing the DVD during shipment.

OBJECT AND SUMMARY OF THE INVENTION

[0022] It is therefore an object of the present invention to provide for the retention of a CD and DVD on a separable hub suitable for use in automated processing.

[0023] Another object of the invention is the provision of a hub adapted for automated placement on a blank.

[0024] A further object of the invention is the provision of a hub for use in automated processing that prevents the inverting of bunched hubs, while promoting partial stacking among hubs during transfer operations.

[0025] Yet another object of the invention is the provision of a hub that prevents rotation of a CD about the mounting post, while minimizing the stresses on the CD’s fragile central hole.
Still another object of the invention is providing a hub that prevents a DVD from departing the hub and promotes rotation of the same about the mounting post.

A further object of the invention is the provision of a hub that prevents the rotation of a DVD about the mounting post.

The invention meets these objectives with a hub for retaining a CD and DVD capable of expediting the packaging of CDs and DVDs into sleeves. In particular, the invention is a retaining hub having a plurality of substantially concentric graduated tiers and a plurality of prongs forming a mounting post. The graduated tiers include a central tier and an outer tier that are delineated by smooth transitions.

The foregoing and other objects and advantages of the invention and the manner in which the same are accomplished will become clearer based on the following detailed description taken in conjunction with the accompanying drawings in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the hub secured to a blank depicting the placement of a media item upon the blank;

FIG. 2 is a top plan view of a preferred embodiment of the hub depicting an inner tier adjacent a mounting post and an outer tier;

FIG. 3 is a cross-sectional view taken generally along lines 3-3 on FIG. 1 depicting the central tier, outer tier, and tapered edge of the preferred embodiment;

FIG. 4 is an enlarged partial view of an upwardly projecting prong that forms a part of the mounting post;

FIG. 5 is an enlarged cross-sectional view of the hub illustrating the placement of a single piece construction CD upon the mounting post such that the mounting base crown contacts an upper portion of the CD;

FIG. 6 is an enlarged cross-sectional view of the hub illustrating the placement of a multi-piece construction DVD upon the mounting post crown such that the mounting post promotes the free rotation of the DVD while preventing the DVD from departing the hub;

FIG. 7 is an enlarged cross-section of two adjacent hubs advancing along a conveyor depicting the partial stacking of the adjacent hubs during transfer operations;

FIG. 8 is a top plan view of the present invention depicting an intermediate tier positioned between the inner tier and outer tier of an alternative embodiment of the hub;

FIG. 9 a cross-sectional view taken generally along lines 9-9 on FIG. 8 depicting the alternative embodiment wherein the central tier is positioned above the intermediate tier and the intermediate tier is positioned above the outer tier; and

FIG. 10 is a perspective view of the use of the retainer hub in conjunction with the blank during an automated process for packaging CDs and DVDs.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which a preferred and an alternative embodiment of the invention is shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout.

An overall view of the multi-purpose hub 10 as used in conjunction with a blank 11 that incorporates features of the present invention is set forth in FIG. 1. With reference to FIG. 2, the retainer hub 10 is comprised of a plurality of graduated tiers 12 and a plurality of prongs 13. In a preferred embodiment, the graduated tiers 12 are substantially concentric. It will be understood that the term “concentric” is used herein to describe structures having a common center or a common axis (e.g., coaxial). The graduated tiers 12 include a central tier 14 and an outer tier 15. The plurality of prongs 13 are integral with the central tier 14 of the hub 10 and form a substantially concentric mounting post 16 having a base 20 and a crown 21. See FIG. 3. Advantageously, the diameter of the mounting post crown 21 is greater than the diameter of the mounting post base 20.

As shown in FIG. 4, each prong 13 may include a bulbous projection 26 forming the crown 21 of the mounting post 16 for preventing a CD 31 or DVD 32 from departing the hub 10, and alternatively, for preventing the CD or DVD from rotating freely around the mounting post. For example, a preferred embodiment of the present invention includes prongs 13 that are arranged in a circle to form the mounting post 16 that is between about 15.45 and 15.55 mm at its rounded top or crown 21, yet only between about 14.80 mm and 14.95 mm at the bottom or base 20, where a disc is positioned during storage. In the preferred embodiment, the graduated tiers 12 are substantially circular. Nevertheless, it will be understood that the graduated tiers 12 are not limited to a circular shape and may be oval, polygonal, or elliptical in shape.

As illustrated in the preferred embodiment of FIGS. 2 and 3, the mounting post base 20 and the mounting post crown 21 are substantially circular. Furthermore, the respective diameters of the mounting post crown 21 and the mounting post base 20 are adapted to receive a compact disc 31 or a digital video disc 32. See FIGS. 5 and 6.

In view of the increased demand for the automated production of media item packaging, it is desirable to provide a substantially circular hub 10 having concentric graduated tiers 12 and, more specifically, an outer tier 15 having a tapered edge 22. As depicted in FIG. 3, the tapered edge 22 allows adjacent hubs 23 to overlap one another during the advancement of hubs along a first conveyor 34 in automated processing. Advantageously, the tapered edge 22 prevents adjacent hubs 23 advancing along the first conveyor 34 from inverting or flipping over during transfer operations. This overlapping effect, or partial stacking, is commonly referred to as a “shingling effect.” A hub 10 having a tapered edge 22 would thereby reduce the tendency of the hubs to flip upon impact with one another during automated processing.

The preferred embodiment of the hub 10 includes twelve resilient prongs 13 that project upwardly from the central tier 14 of the hub. See FIGS. 3 and 9. It will be
understood that, however, the retainer hub 10 is comprised of at least six prongs 13 for retaining the CD 31 or DVD 32. Advantageously, the central tier 14 of the hub 10 is positioned within the hub and above the outer tier 15. In other words, the central tier 14 is of a greater height than the outer tier 15 relative to the plane of the outer tier. See FIG. 3. In an alternative embodiment, the hub 10 includes a concentric intermediate tier 25 positioned between the central tier 14 and the outer tier 15. See FIG. 9. Accordingly, the central tier 14 of the alternative embodiment is positioned above the intermediate tier 25 and the outer tier 15, and the intermediate tier is positioned above the outer tier.

[0045] The graduated tiers 12 include transitions 30 that define the individual tiers and form oblique angles. Stated differently, the graduated tiers 12 slope downwardly from the central tier 14 to the outer tier 15. In this configuration, the smooth transition areas 30 delineating the tiers, coupled with the tapered edge 22 of the outer tier 15, promotes the overlap of adjacent tiers (i.e., shingling effect) during transfer operations. See FIGS. 7 and 10.

[0046] Advantageously, the present hub 10 is capable of satisfactorily securing a CD 31 or a DVD 32. See FIGS. 5 and 6. With respect to the CD 31 depicted in FIG. 5, the diameter of the mounting post crown 21 is capable of engaging the CD mounted on the mounting post 16. Specifically, the mounting post crown 21 formed from resilient prongs 13 exerts the minimum amount of pressure on the uppermost portions of the CD 31 to prevent the CD from rotating freely about the mounting post 16.

[0047] This feature of the present hub 10 provides the capability for direct placement and alignment of a standard CD 31 upon, for example, a blank 11 or a tray for receiving a CD. As used herein, the term “direct placement and alignment” will be understood to mean the securing of a CD to a hub such that the CD is prevented from rotating about the mounting post 16. This is an advantageous feature of the invention because it permits artwork or printing on the CD 31 surface to be directly aligned with any background artwork on the interior portion of the packaging.

[0048] With reference to FIG. 6, the retainer hub 10 is also capable of securing a DVD 32. The diameter of the mounting post crown 21 is selected to permit the free rotation of the DVD 32 about the mounting post 16. Stated differently, the DVD 32 is allowed to rotate around the mounting post 16, yet is prevented from departing from the hub 10. This is an important feature because a DVD 32 is fragile at its center, being formed from two thin discs (e.g., between about 0.54 mm and 0.60 mm thick) that are bonded with an adhesive across the face of the thin discs except at an area immediately surrounding the center hole. For this reason, the center portion of a DVD 32 is prone to breakage during shipment and storage. In particular, a DVD 32 is subject to multiple fractures emanating from the center hole or “spider cracking” when placed under constant pressure. Construction of this type is necessary in the event that excessive adhesive is deposited on the bonding surface of one of the two pieces. The area immediately surrounding the center hole—absent of adhesive—provides a trough into which the excess adhesive may flow. Otherwise, if excess adhesive reached the center hole, it may flow out of the DVD 32 and onto the hub 10 and packaging, thereby permanently bonding the two, thereby rendering the DVD inoperable. Furthermore, any excess adhesive on the DVD 32 would adhere to the DVD player during operation, thus rendering the DVD player inoperable. In brief, this advantageous feature of the present invention secures a DVD 32 with reduced pressure at its weakest area the area surrounding the center hole.

[0049] The retainer hub 10 of the preferred embodiment is formed from a blend of impact styrene and crystal styrene. Impact styrene enhances the shear strength to the hub 10 while crystal styrene provides desirable stiffness properties. It will be understood, however, that the hub 10 may be formed from a blend of polymers such as polypropylene, polyethylene, or polystyrene.

[0050] Another aspect of the invention, as illustrated in FIG. 1, includes the use of the retainer hub 10 in conjunction with a foldable blank 11 or sleeve. The operation of the retaining hub 10 in conjunction with a foldable blank 11 may be understood upon reference to FIG. 10, which illustrates an automated process for packaging CDs 31 and DVDs 32. As depicted, CDs 31 or DVDs 32 are advanced from a disk supply station 33 along a second conveyor 36 as retaining hubs 10 are advanced from a hub supply station 38 along a first conveyor 34. During the advancement of, for example, the CD 31 along the second conveyor 36, the retaining hubs 10 are simultaneously advanced along the first conveyor 34 to a mounting station 37. As described earlier, the tapered edge 22 and graduated tiers 12 of the retaining hub 10 permits the hubs to advance along the first conveyor 34 without inverting when coming into contact with one another. This is a result of the shingling effect afforded by the tapered edge 22.

[0051] Next, the retaining hubs 10 are positioned beneath the advancing CDs 31 or DVDs 32, at the mounting station 37. An arm 40 or similar retaining device is placed over the top of the DVD 32 or CD 31 to secure the same in place while the hub 10 is inserted into the center hole of the CD or DVD, thus securing the CD or DVD and the hub together. Stated differently, the CD 31 is mounted on the mounting post 16 of the hub 10.

[0052] Upon securing the hub 10 to the CD 31 or DVD 32, the second conveyor 36 advances the hub-C/D combination 41 to a placement station (not shown) where the hub-C/D combination is mounted onto a blank 11.

[0053] During the mounting of the CD 31 on the hub 10, blanks 11 are advanced along a third conveyor (not shown) to the hub-C/D placement station in preparation for placement of the hub-C/D 41 onto the blank. Upon arriving at the placement station, an arm (not shown) having a suction means retrieves a hub-C/D 41 from the second conveyor 36 and places the hub-C/D combination onto the blank 11. The hub-C/D 41 is selectively placed on the blank 11 such that the hub 10 is centered with respect to one section of the blank. This placement method is commonly referred to as a “pick-and-place” action. The hub-C/D 41 may be secured to the blank 11 with an adhesive.

[0054] Upon placing the CD-hub 41 onto the blank 11, the third conveyor advances the blank to a folding workstation (not shown) wherein adhesive is used to secure selective portions of the blank to one another. Subsequently, the blank 11 is folded along its score lines such that equal portions are folded against one another to thereby form a sleeve. Next, the third conveyor advances the blank 11 to any number of
packaging stations (e.g., shrink wrap) and, thereafter, to a loading position where the sleeve is loaded for transportation and shipment.

[0055] The use of the retainer hub 10 in conjunction with a foldable blank 11 during an automated process overcomes the problems associated with the prior art wherein media items are laterally inserted into a sleeve lacking a support member (e.g., hub) to protect the media item from lateral and load impact forces. Furthermore, the likely occurrence of misplaced media items is reduced because quality control managers can affirmatively view the placement of the media item onto the retainer hub 10 prior to packaging (i.e., sealing the sleeve).

[0056] It will be understood that mounting stresses acting upon the center hole of the media items can be further minimized by reducing the number of prongs 13 that form the mounting post 16 from twelve to as few as three prongs. Stress on the media items may also be reduced by alternating prongs 13 that form a mounting post 16 wherein the mounting post crown 21 is larger than the mounting post base 20 (i.e., post of varying diameter) with prongs that form a mounting post wherein the crown is equal to or less than the base (i.e., a post having a constant diameter that is less than the diameter of the CD’s 31 or DVD’s 32 center hole). Stated differently, prongs 13 having the bulbous projection 26 at the mounting post crown 21 can be alternated with prongs lacking the projection, thereby reducing the stresses acting on the center hole. See FIG. 4.

[0057] From the foregoing, it will be seen that there has been brought to the art a new device which overcomes the shortcomings associated with the automated packaging of media items. A particular advantage of the present invention is the increased efficiency and accuracy of automated packaging processes that incorporate the hub 10. Specifically, the tapered edge 22 and graduated tiers 12 prevent the inverting of adjacent hubs 10 during transfer operations. In other words, the likelihood of damaged or misplaced media items is reduced. An additional advantageous aspect of the invention is the reduction of catastrophic damage to media items during shipment and storage.

[0058] In the drawings and specification, there have been disclosed typical embodiments of the invention and, although specific terms have been employed, they have been used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being set forth in the following claims.

That which is claimed is:

1. A retainer hub that can secure compact discs and digital video discs, comprising:

   a plurality of substantially concentric, graduated tiers, said graduated tiers including at least a central tier and an outer tier; and

   a plurality of prongs integral with said central tier of said hub, said plurality of prongs forming a substantially circular mounting post having a base and a crown, wherein the diameter of said mounting post crown is greater that the diameter of said mounting post base.

2. A retainer hub according to claim 1, wherein said substantially concentric, graduated tiers are substantially circular.

3. A retainer hub according to claim 1, wherein:

   said mounting post base and said mounting post crown are substantially circular, and respective diameters of said mounting post crown and said mounting post base are adapted to receive a compact disc, a digital video disc, or both.

4. A retainer hub according to claim 1, wherein said outer tier has a tapered edge.

5. A retainer hub according to claim 1, wherein said plurality of prongs comprises at least three resilient prongs projecting upwardly from said central tier of said hub.

6. A retainer hub according to claim 1, wherein said plurality of prongs comprises at least six resilient prongs projecting upwardly from said central tier of said hub.

7. A retainer hub according to claim 1, wherein said plurality of prongs comprises between about ten and fourteen resilient prongs projecting upwardly from said central tier of said hub.

8. A retainer hub according to claim 1, wherein said central tier is positioned adjacent said mounting post and above said outer tier.

9. A retainer hub according to claim 1, further comprising at least one concentric intermediate tier positioned between said central tier and said outer tier.

10. A retainer hub according to claim 9, wherein said central tier is positioned adjacent said mounting post, and above said intermediate tier and said outer tier.

11. A retainer hub according to claim 9, wherein said central tier is positioned adjacent said mounting post and above said intermediate tier and said outer tier, and said intermediate tier is positioned above said outer tier.

12. A retainer hub according to claim 9, wherein said plurality of graduated tiers forms oblique angles at transitions between said tiers.

13. A retainer hub according to claim 1, wherein the diameter of said mounting post crown is capable of engaging a compact disc mounted on said mounting post with sufficient pressure to prevent the compact disc from rotating freely about said mounting post.

14. A retainer hub according to claim 1, wherein the diameter of said mounting post crown is selected to permit the free rotation of a digital video disc mounted on said post, while securing the digital video disc to said retainer hub.

15. A retainer hub according to claim 1, wherein the diameter of said mounting post crown is capable of engaging a digital video disc mounted on said post with sufficient pressure to prevent the digital video disc from rotating freely about said mounting post.

16. A retainer hub according to claim 1, wherein said hub is formed from a blend of polymers selected from the group consisting of polyethylene, polypropylene, and polystyrene.

17. A compact disc and digital video disc hub comprising:

   a plurality of substantially concentric, graduated tiers, said graduated tiers including at least a central tier and an outer tier; and

   a plurality of prongs integral with said central tier of said hub, said plurality of prongs forming a substantially circular mounting post having a base and a crown, wherein the diameter of said mounting post crown is greater that the diameter of said mounting post base; wherein said hub is secured to a foldable blank to thereby facilitate direct placement of said hub on said blank during an automation process.
18. A compact disc and digital video disc hub according to claim 17, wherein:
said mounting post base and said mounting post crown are substantially circular, and
respective diameters of said mounting post crown and said mounting post base are adapted to receive a compact disc, a digital video disc, or both.
19. A compact disc and digital video disc hub according to claim 17, wherein said outer tier has a tapered edge.
20. A compact disc and digital video disc hub according to claim 17, wherein said central tier is positioned adjacent said mounting post and above said outer tier.
21. A compact disc and digital video disc hub according to claim 17, further comprising at least one concentric intermediate tier positioned between said central tier and said outer tier.
22. A compact disc and digital video disc hub according to claim 21, wherein said central tier is positioned adjacent said mounting post and above said intermediate tier and said outer tier.
23. A compact disc and digital video disc hub according to claim 21, wherein said central tier is positioned adjacent said mounting post and above said intermediate tier and said outer tier, and said intermediate tier is positioned above said outer tier.
24. A retainer hub according to claim 17, wherein the diameter of said mounting post crown is capable of engaging a digital video disc mounted on said post with sufficient pressure to prevent the digital video disc from rotating freely about said mounting post.
25. A retainer hub according to claim 17, wherein the diameter of said mounting post crown is selected to permit the free rotation of a digital video disc mounted on said post, while securing the digital video disc to said retainer hub.
26. A retainer hub according to claim 17, wherein the diameter of said mounting post crown is capable of engaging a plurality of substantially concentric, graduated tiers, said graduated tiers including at least a central tier and an outer tier; and
a plurality of prongs integral with said central tier of said hub, said plurality of prongs forming a substantially circular mounting post having a base and a crown, wherein the diameter of said mounting post crown is greater than the diameter of said mounting post base; wherein respective diameters of said mounting post crown and said mounting post base are adapted to receive a compact disc, a digital video disc, or both.
27. A retainer hub that can secure compact discs and digital video discs, consisting of:
a plurality of substantially concentric, graduated tiers, said graduated tiers including at least a central tier and an outer tier; and
a plurality of prongs integral with said central tier of said hub, said plurality of prongs forming a substantially circular mounting post having a base and a crown, wherein the diameter of said mounting post crown is greater than the diameter of said mounting post base; wherein respective diameters of said mounting post crown and said mounting post base are adapted to receive a compact disc, a digital video disc, or both.
28. A retainer hub according to claim 27, wherein said outer tier has a tapered edge.
29. A retainer hub according to claim 27, wherein said plurality of prongs comprises about twelve resilient prongs projecting upwardly from said central tier of said hub.
30. A retainer hub according to claim 27, wherein said central tier is positioned adjacent said mounting post and above said outer tier.
31. A retainer hub according to claim 27, further comprising at least one concentric intermediate tier positioned between said central tier and said outer tier.
32. A retainer hub according to claim 31, wherein said central tier is positioned adjacent said mounting post and above said intermediate tier and said outer tier.
33. A retainer hub according to claim 31, wherein said central tier is positioned adjacent said mounting post and above said intermediate tier and said outer tier, and said intermediate tier is positioned above said outer tier.