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(54) **MEDIA STORAGE DEVICES**

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(57) **ABSTRACT**

Hard and soft cases for storing media are disclosed. A hard case includes hooking mechanisms, on one end, and receptacles, on the other end, for interconnecting a hard case with another case. The case has side extensions which can be superimposed to connect it to another similar case. Four cases are connected to form a two by two array. The cases have holes on the body of the cases and on the side extensions so that the array can be mounted to a conventional binder or to a novel binder disclosed where the distance between the rings is about  $135\pm5$  millimeters. A soft case made by bonding together plastic sheets includes two straps extending from one end and two straps extending from the other to connect one case with another. The soft case includes extensions that extend outwardly from the sides of the soft case and house flat magnetic and non magnetic strips. Four soft cases are connected to form an array that is mountable to a conventional binder or a binder with a larger distance between the rings. A page soft case made in accordance with the present invention for storing media is an integral flat piece constructed by bonding together plastic sheets includes four pockets on each side. The page case can be mounted to a conventional binder or to a binder with rings being spaced apart at a greater distance. In another embodiment, straps are added to the ends of the page soft case to connect the page soft case to another case.

**Related U.S. Application Data**

(60) Provisional application No. 60/576,794, filed on Jun. 3, 2004.

**Publication Classification**

(51) Int. Cl.<sup>7</sup> ..... **B65D 85/57**

(52) U.S. Cl. ..... **206/308.1; 211/40**

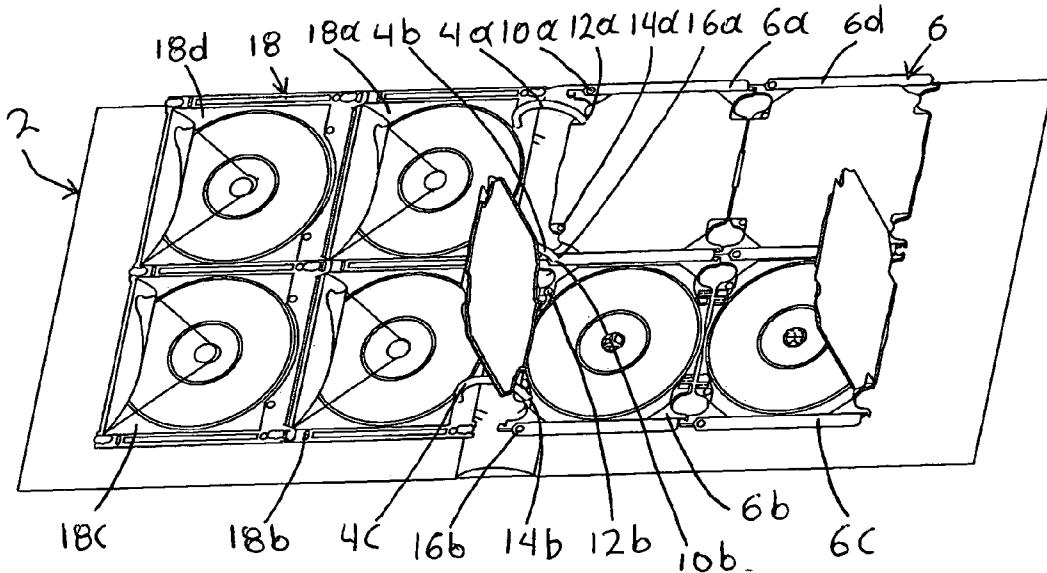


Figure 01A

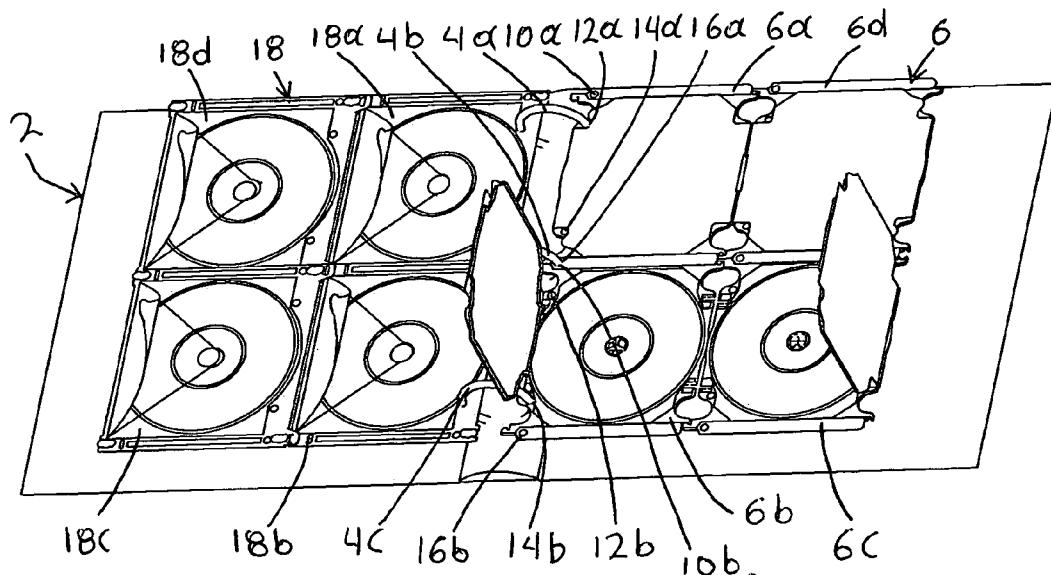


Figure 01B

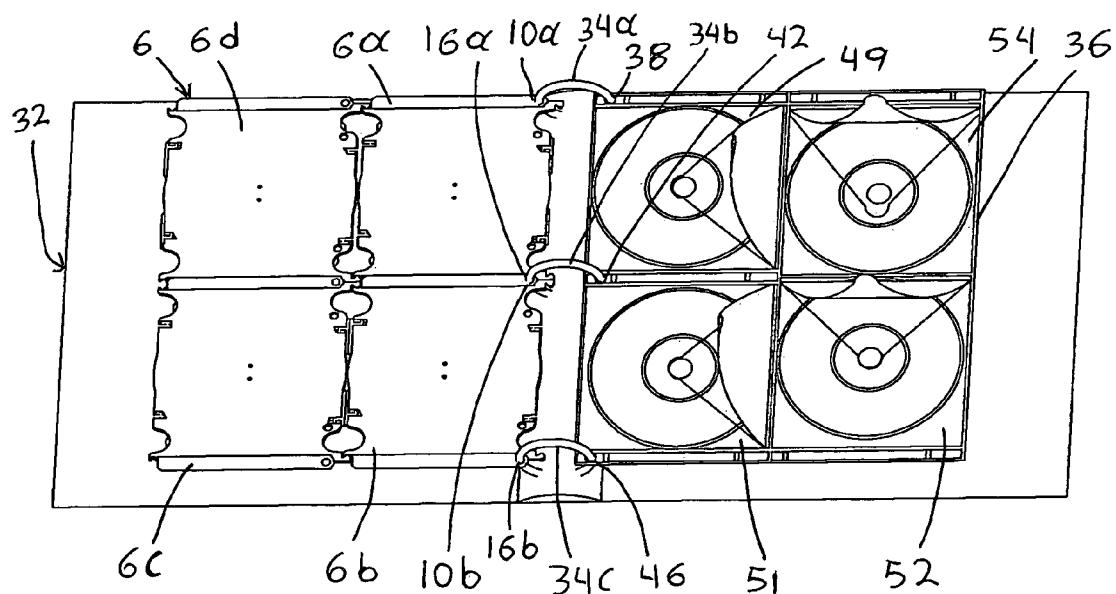


Figure 2A

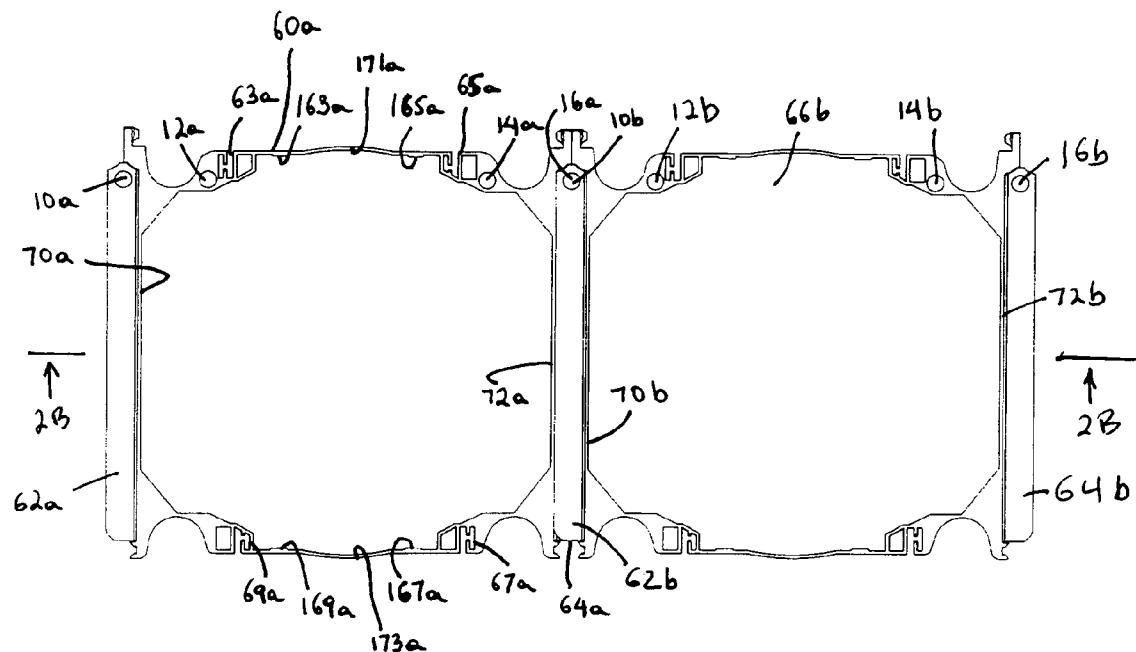


Figure 2B

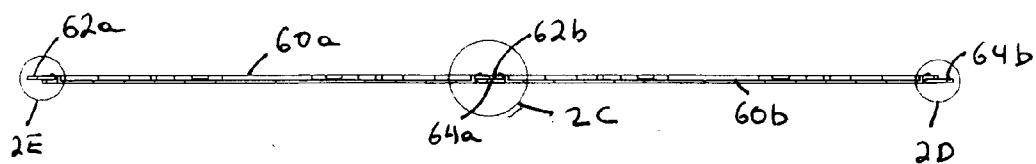


Figure 2C

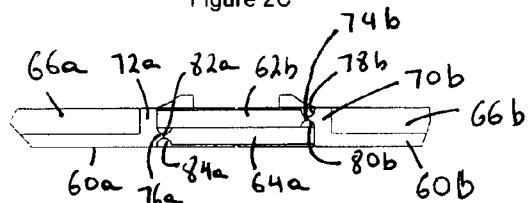
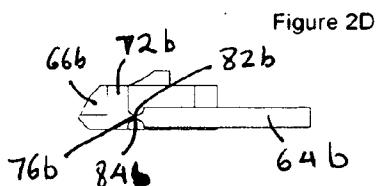
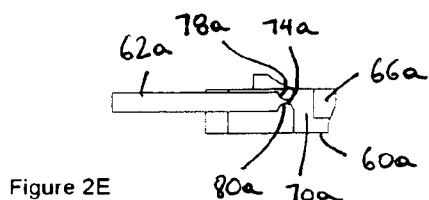
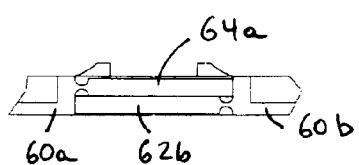
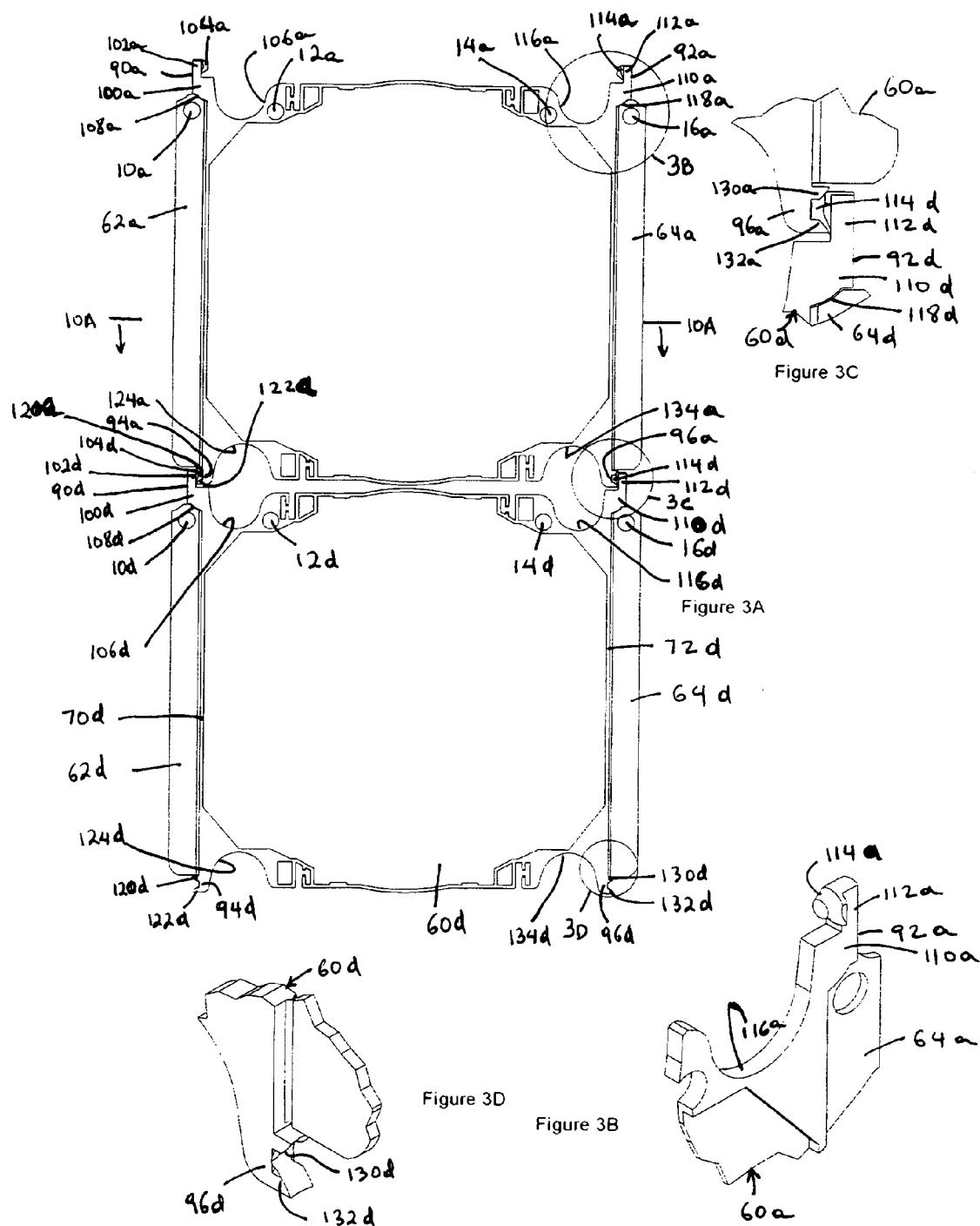


Figure 2F





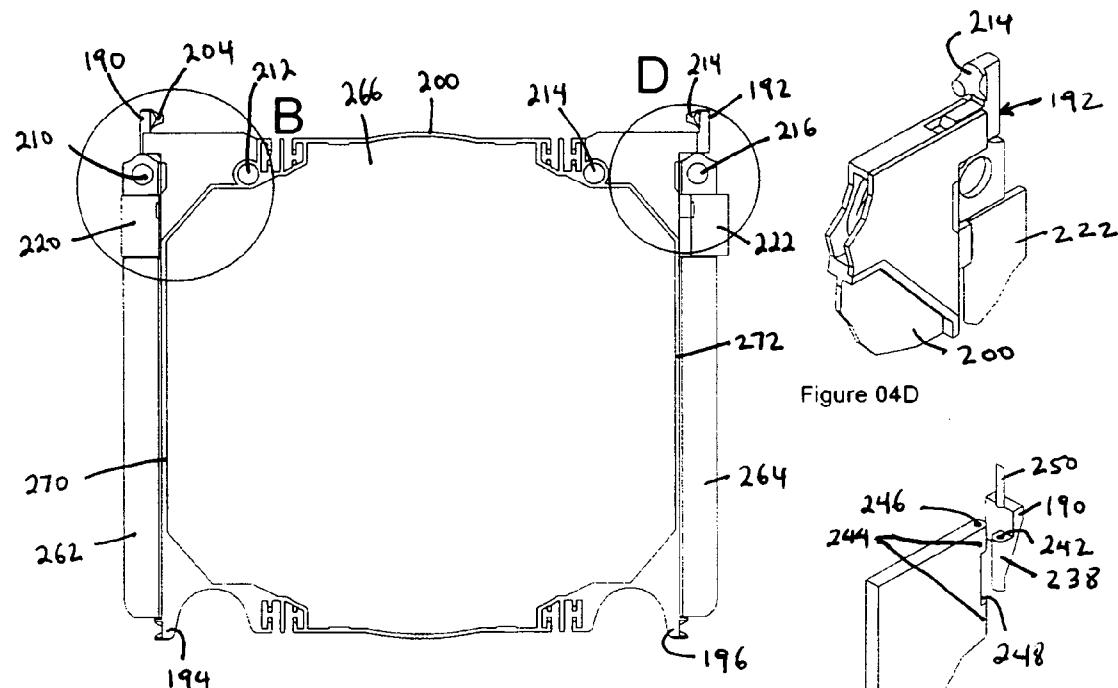


Figure 04A

Figure 04D

Figure 04E

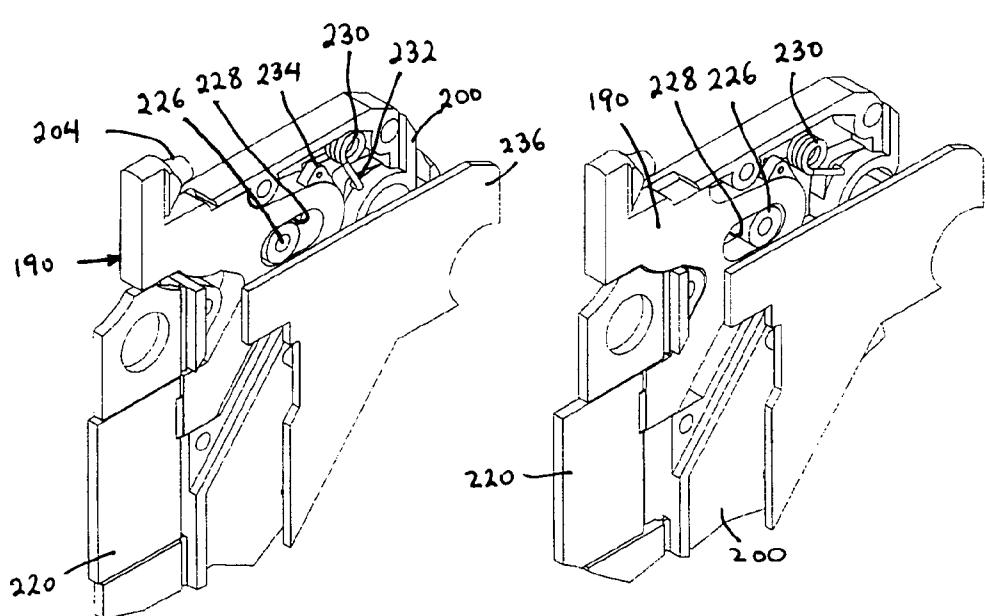


Figure 04B

Figure 04C

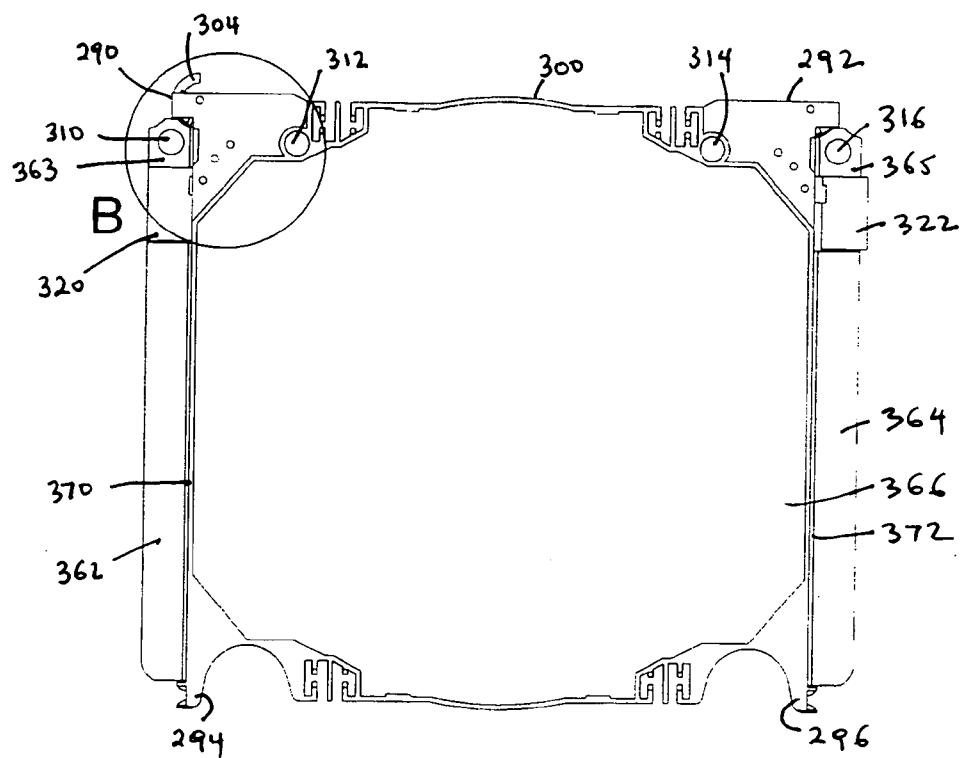


Figure 05A

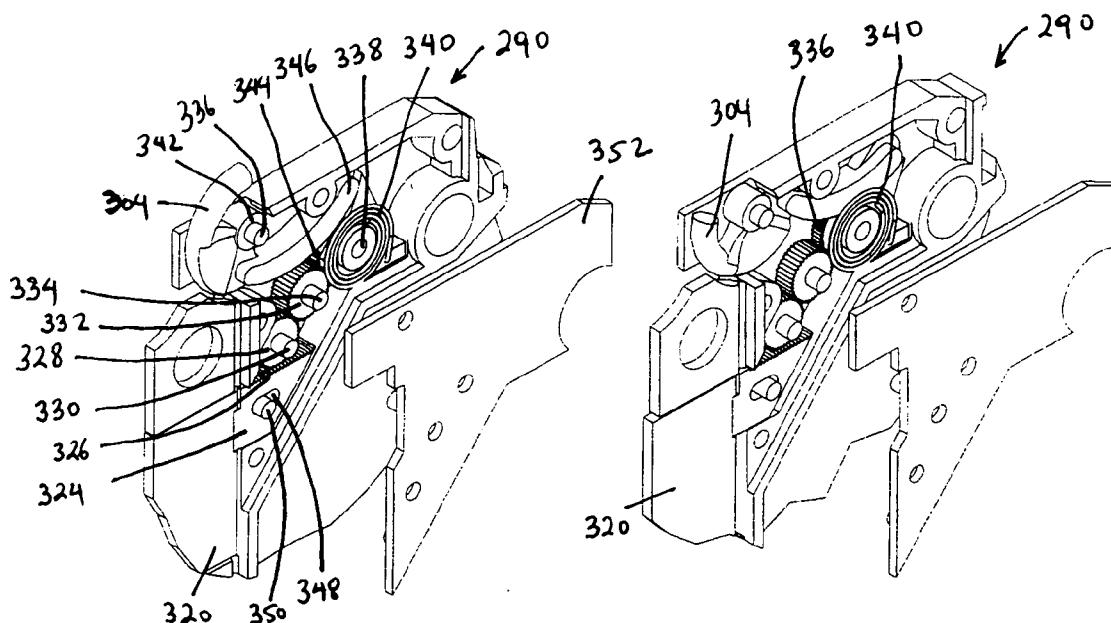


Figure 05B

Figure 05C

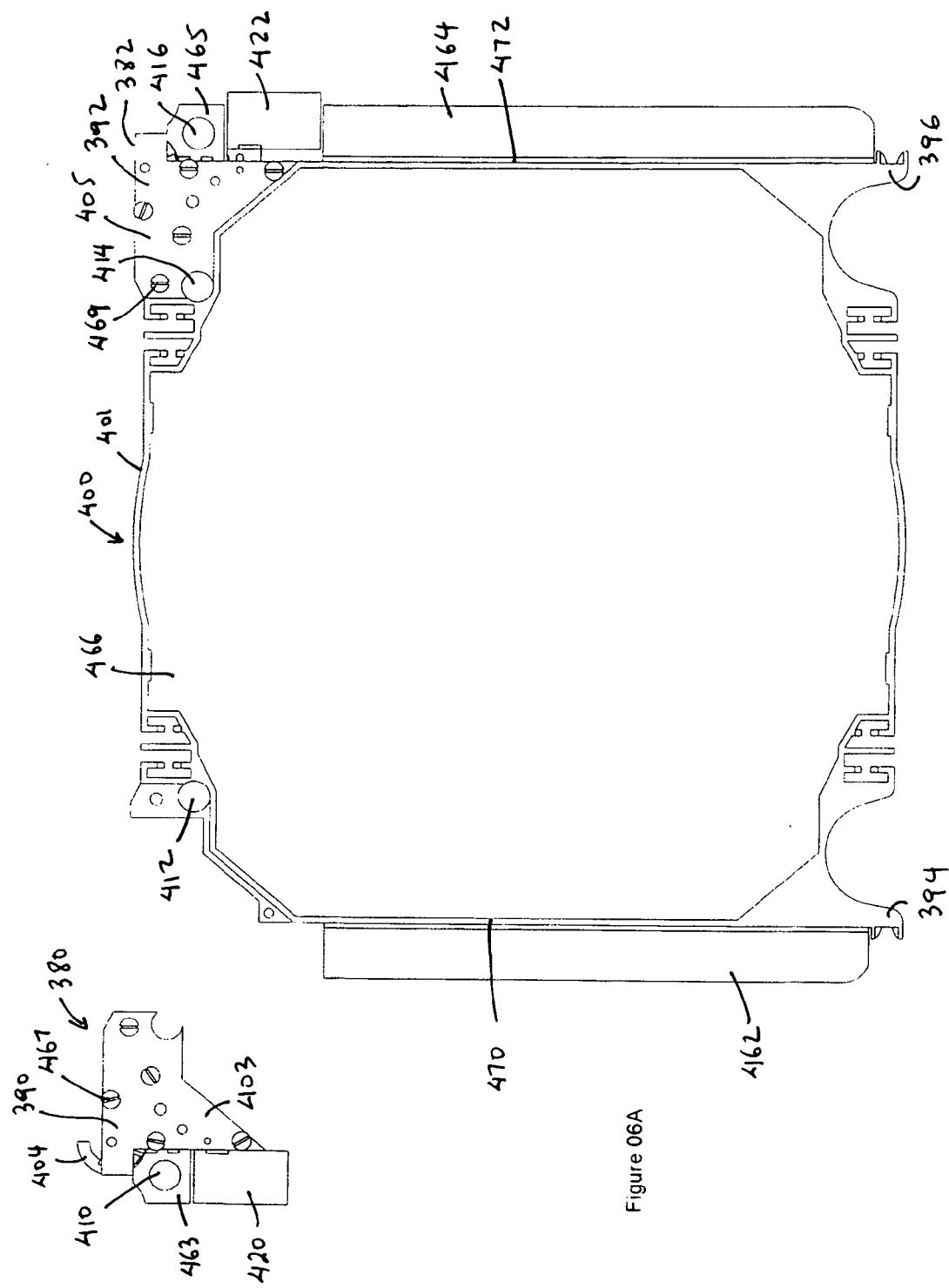
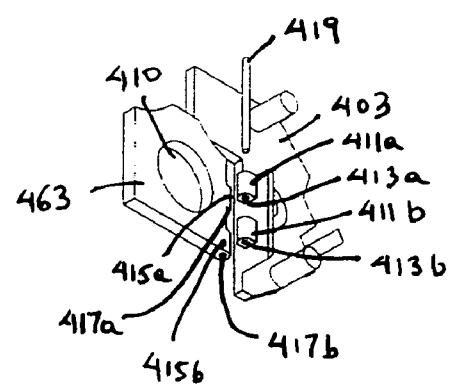
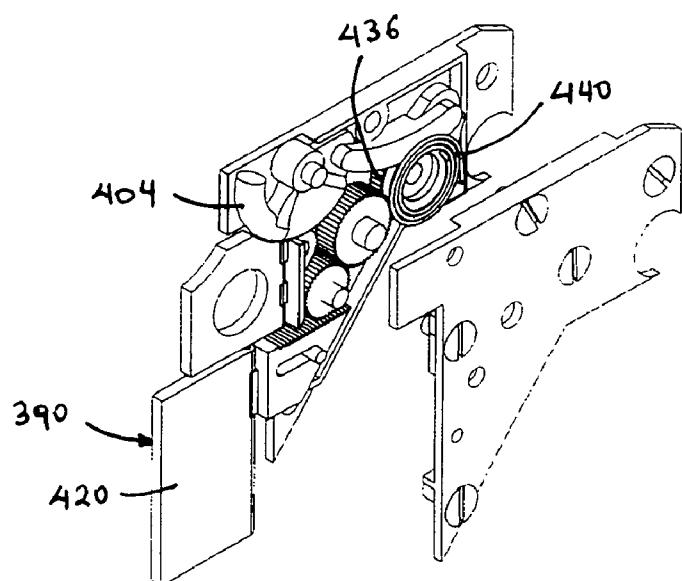
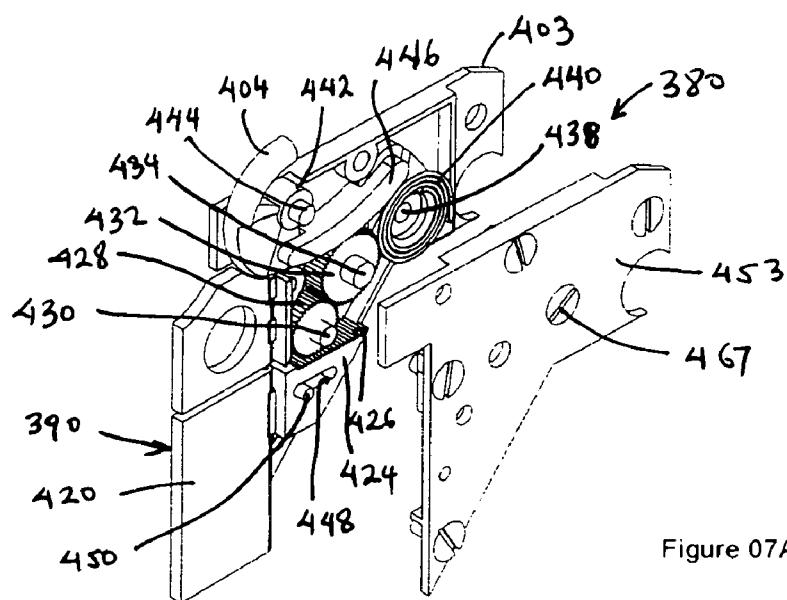


Figure 06A



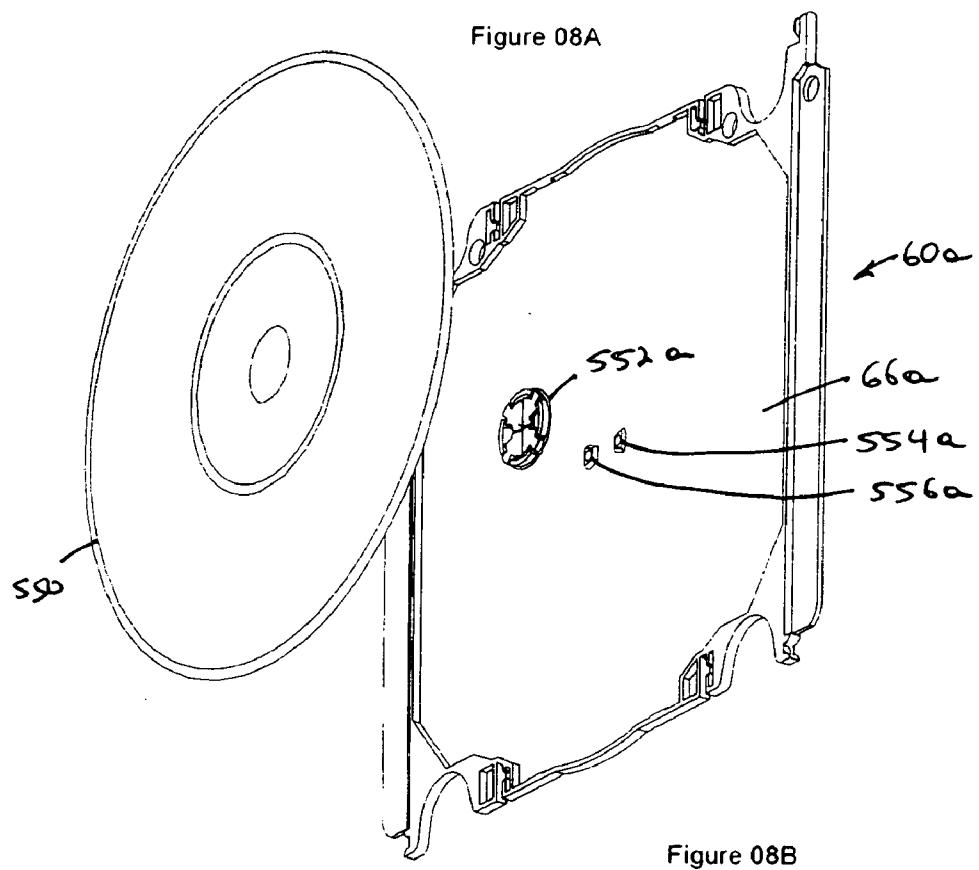


Figure 08B

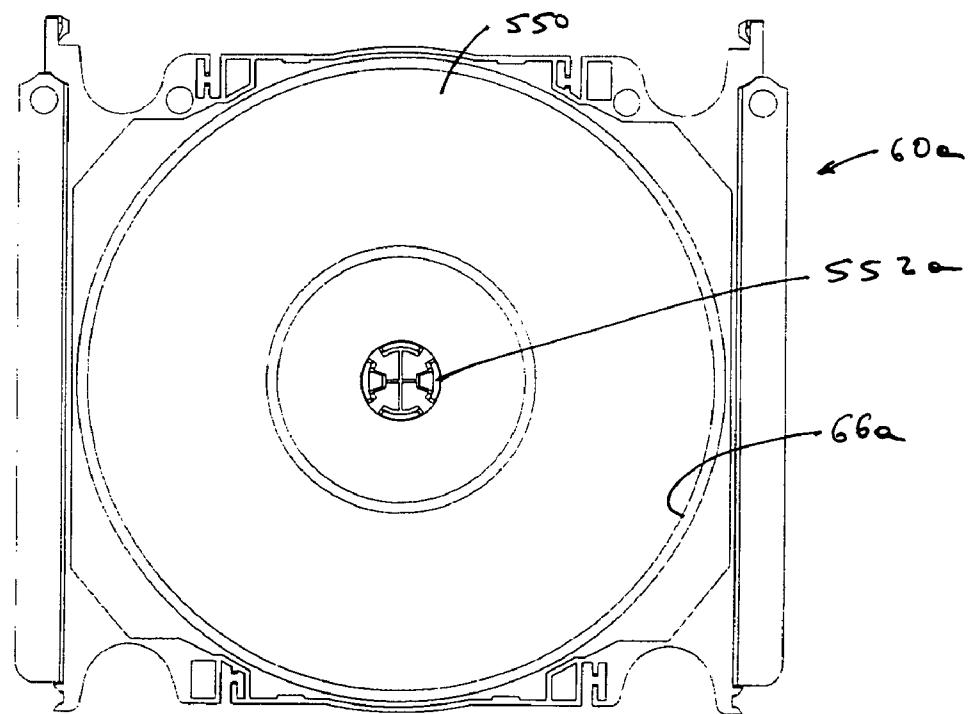


Figure 8C

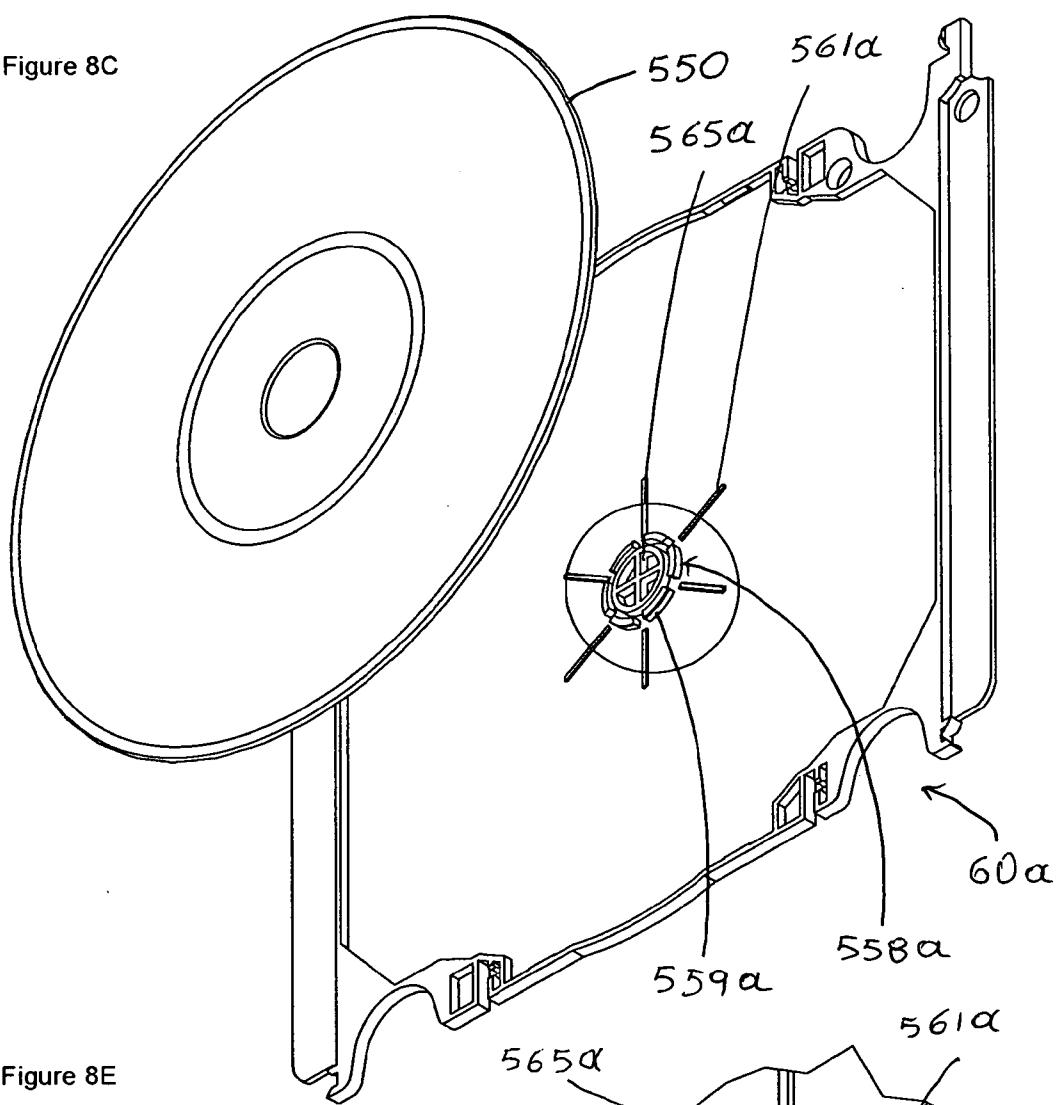


Figure 8E

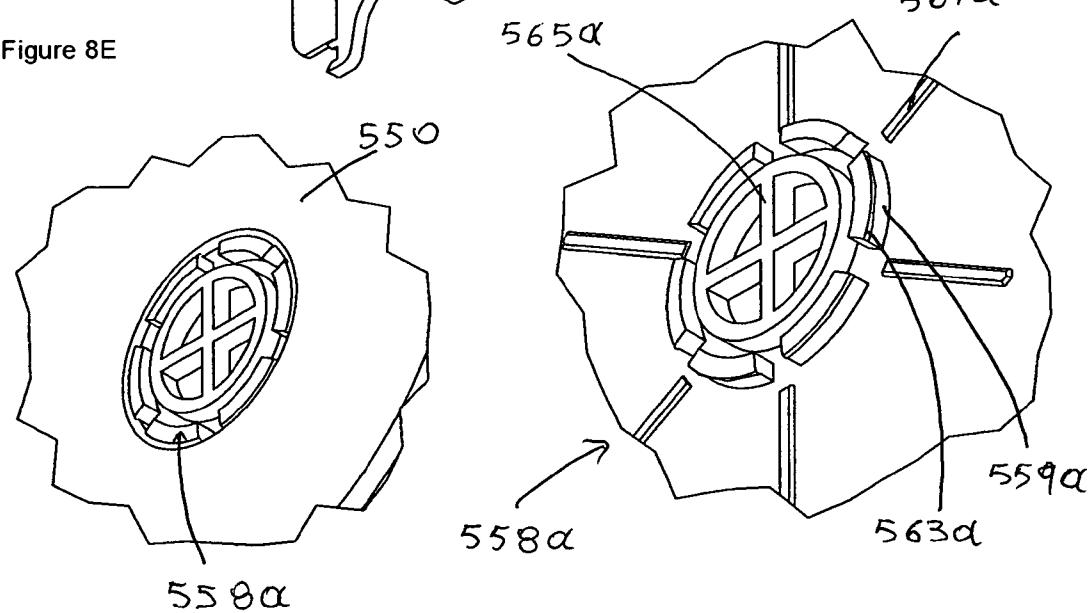


Figure 8D

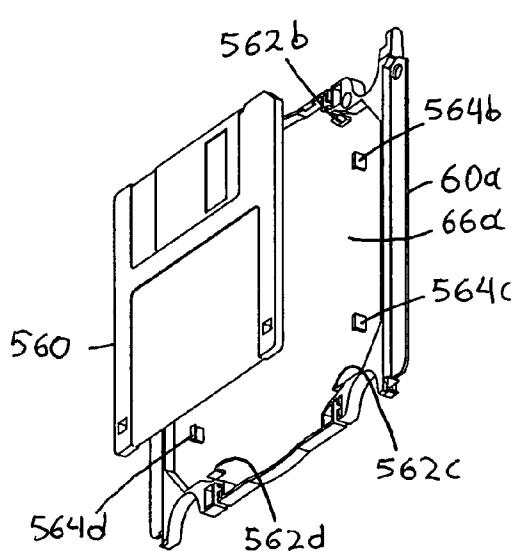


Figure 09A

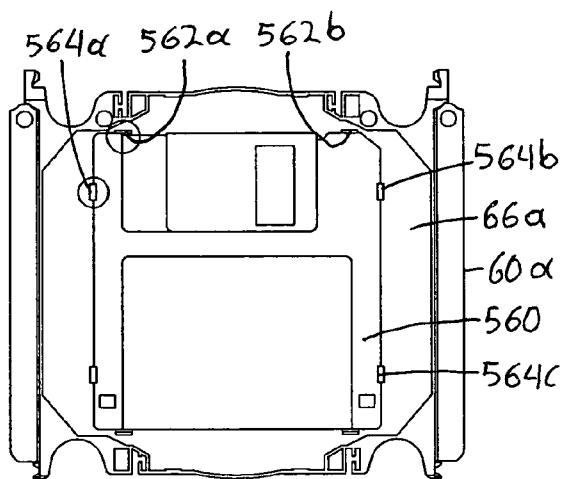


Figure 09B

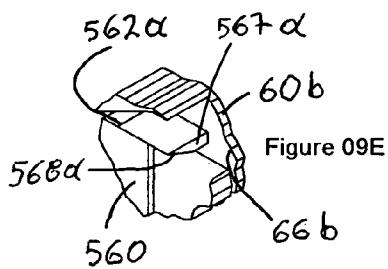


Figure 09E

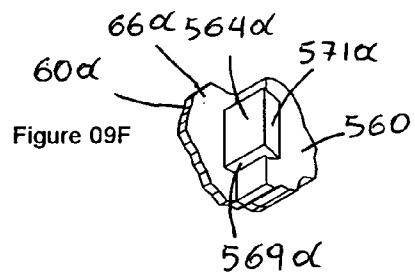


Figure 09F

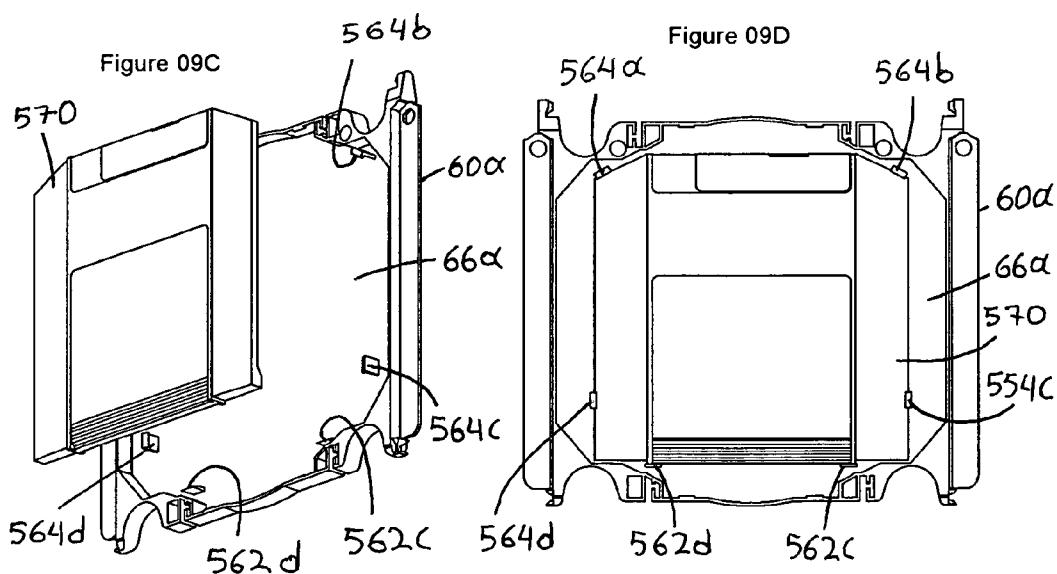


Figure 09C

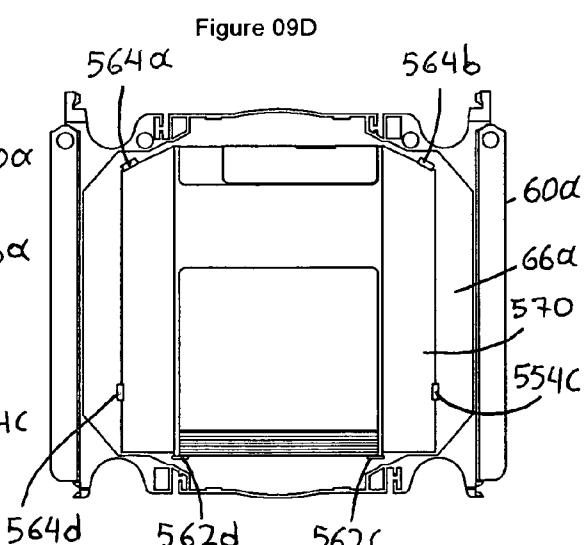


Figure 09D

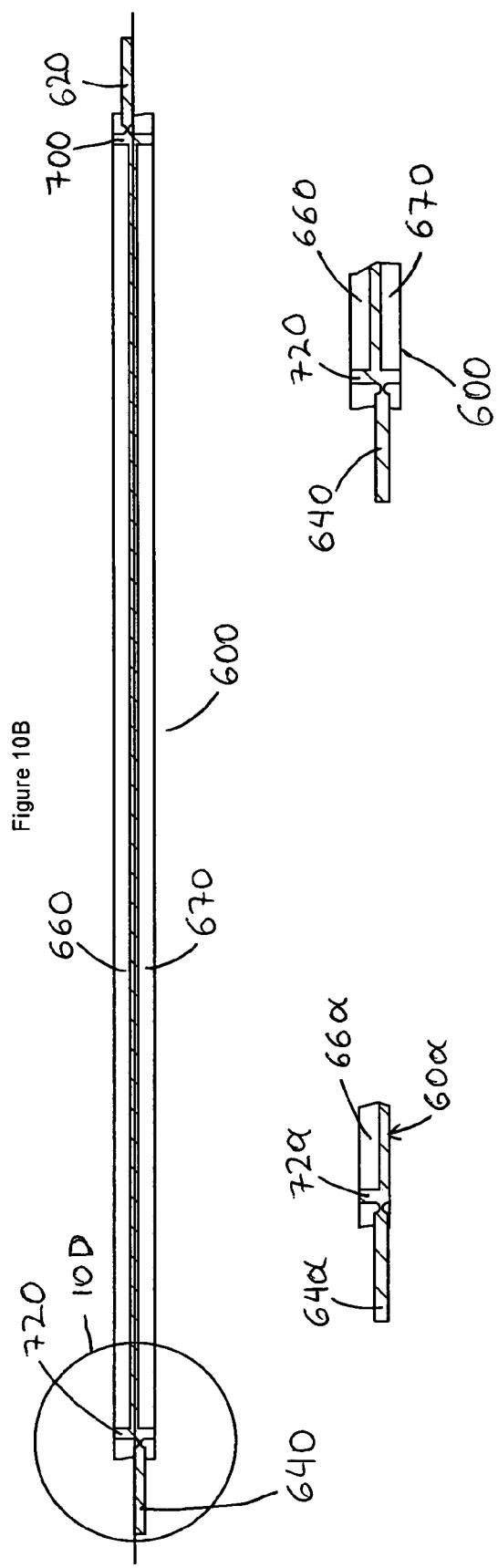
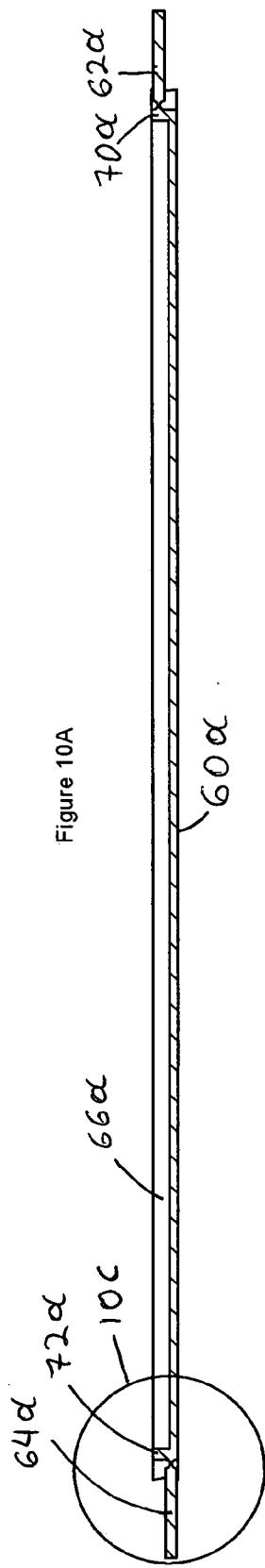


Figure 10C  
Figure 10D

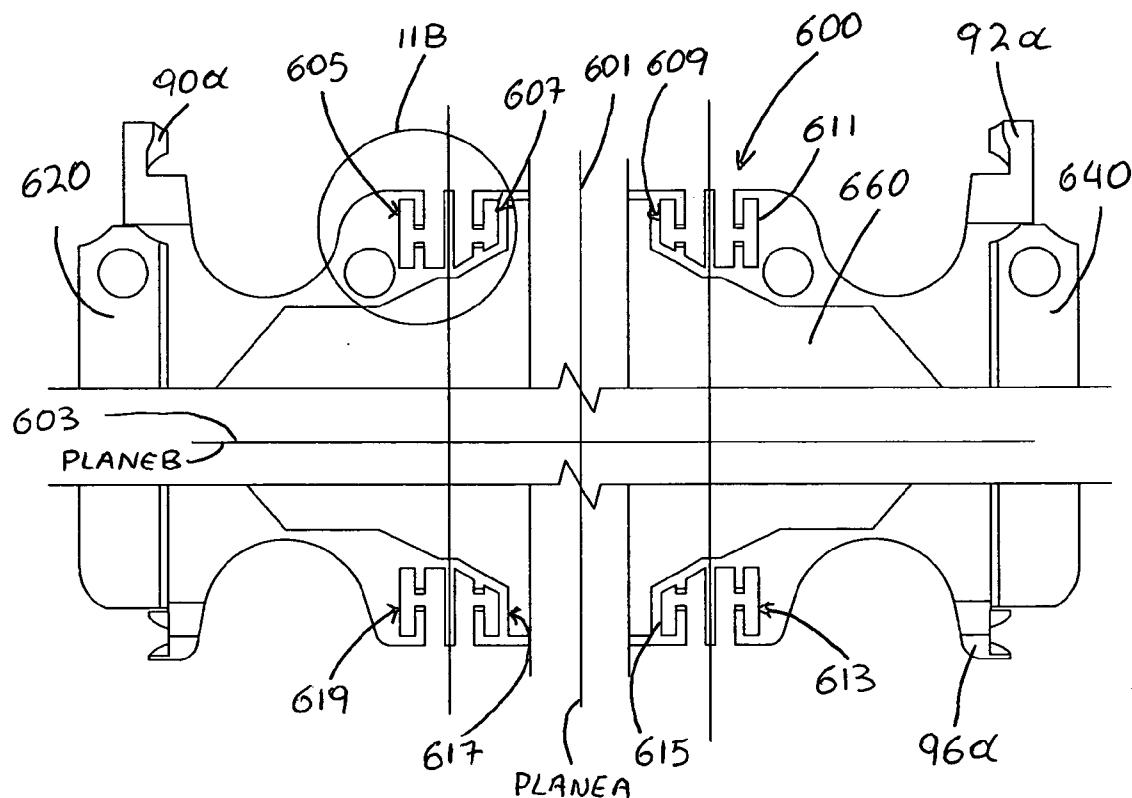


Figure 11A

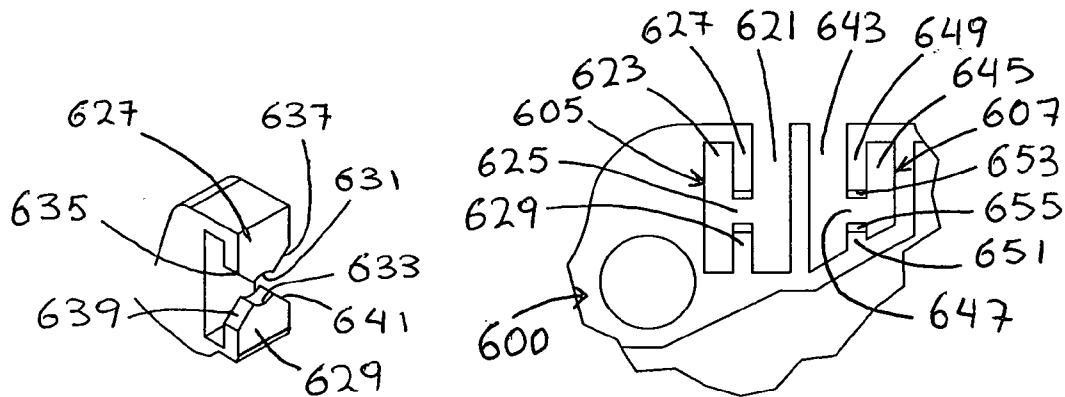
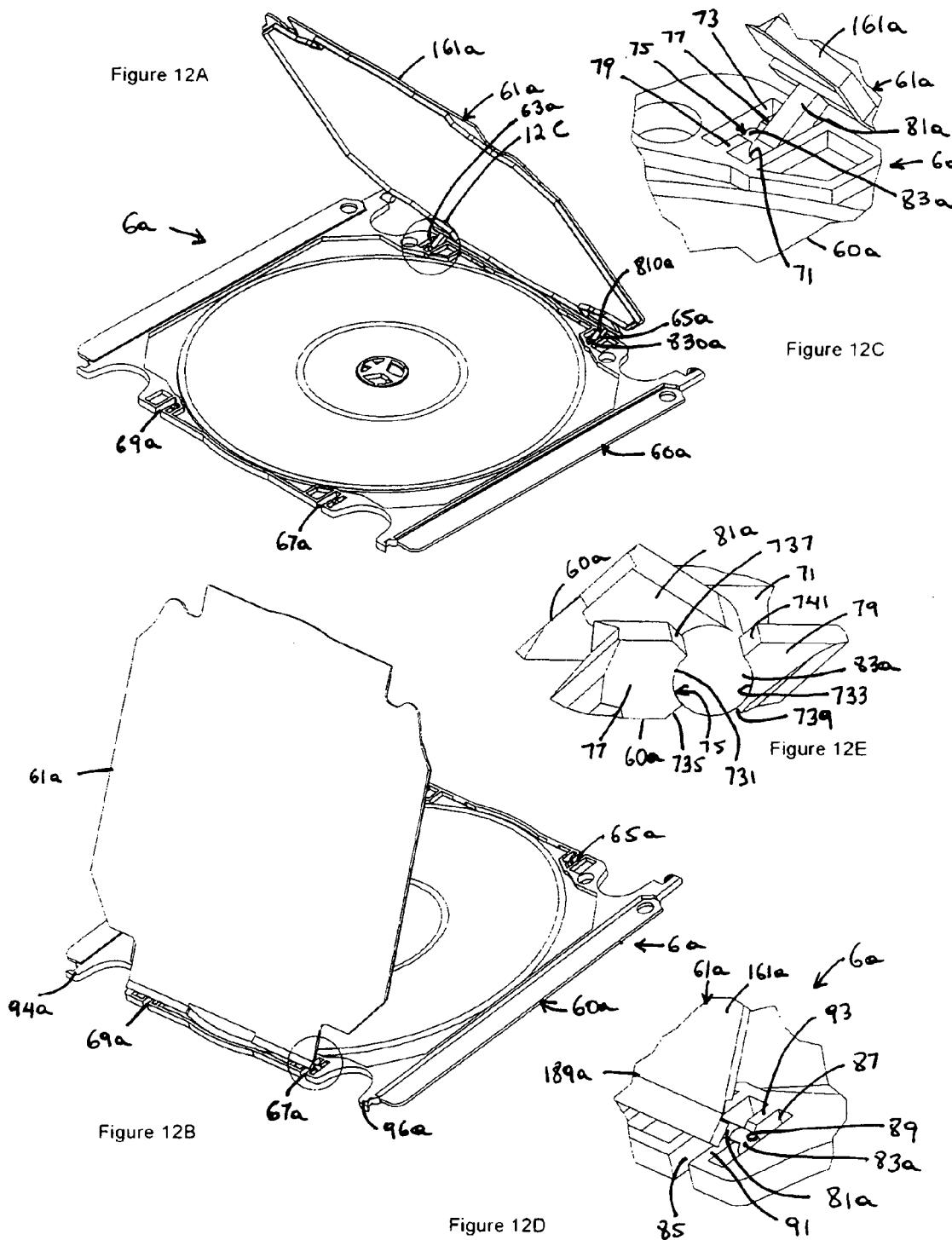


Figure 11C

Figure 11B



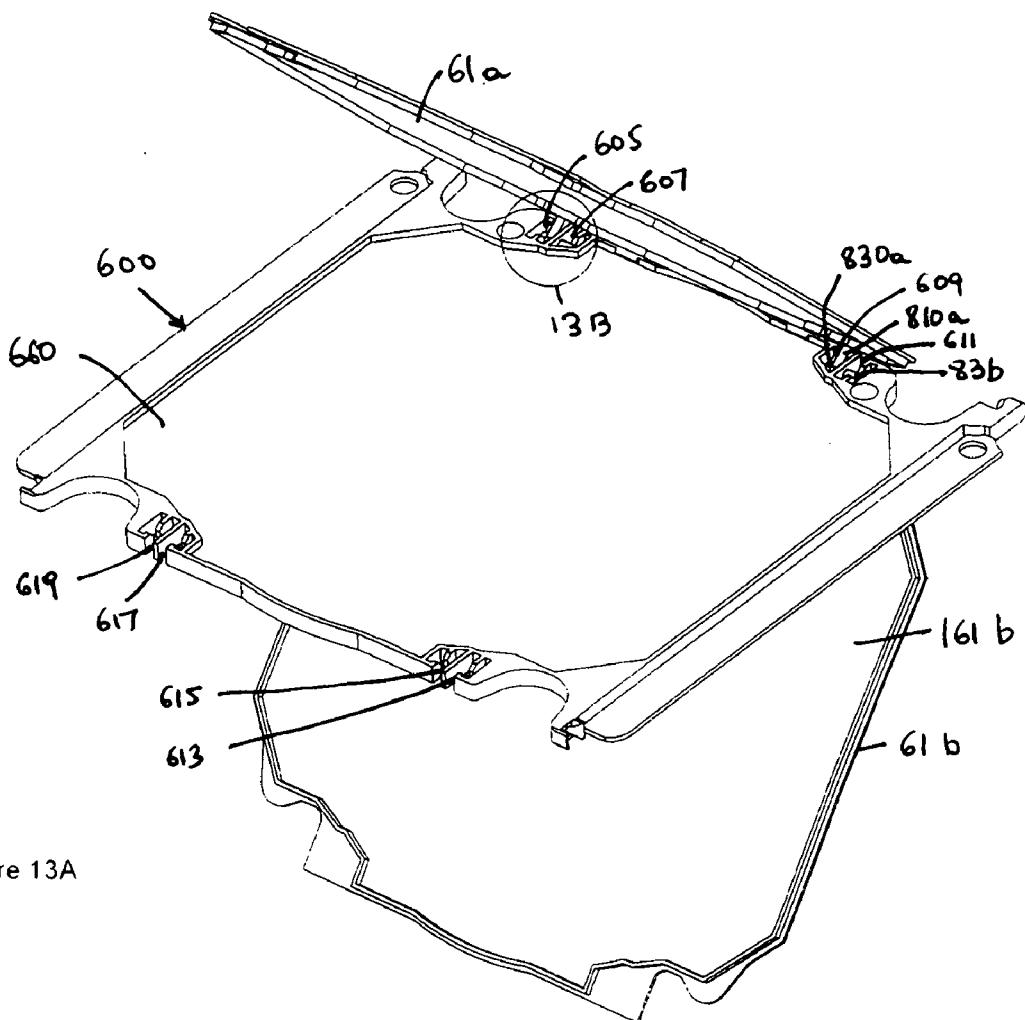


Figure 13A

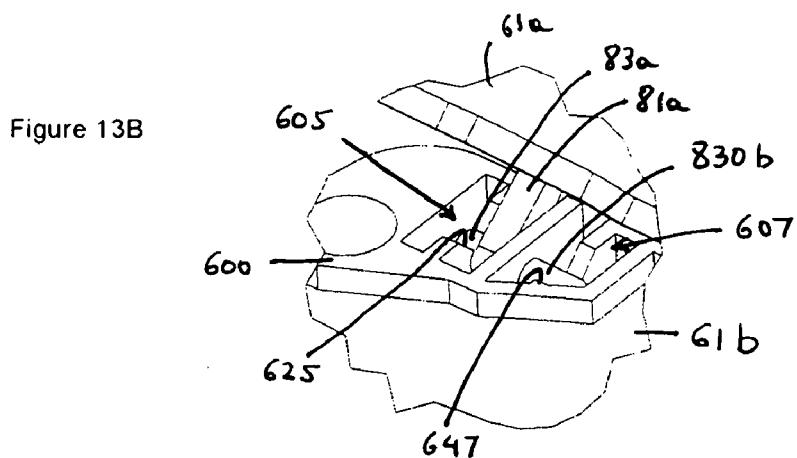
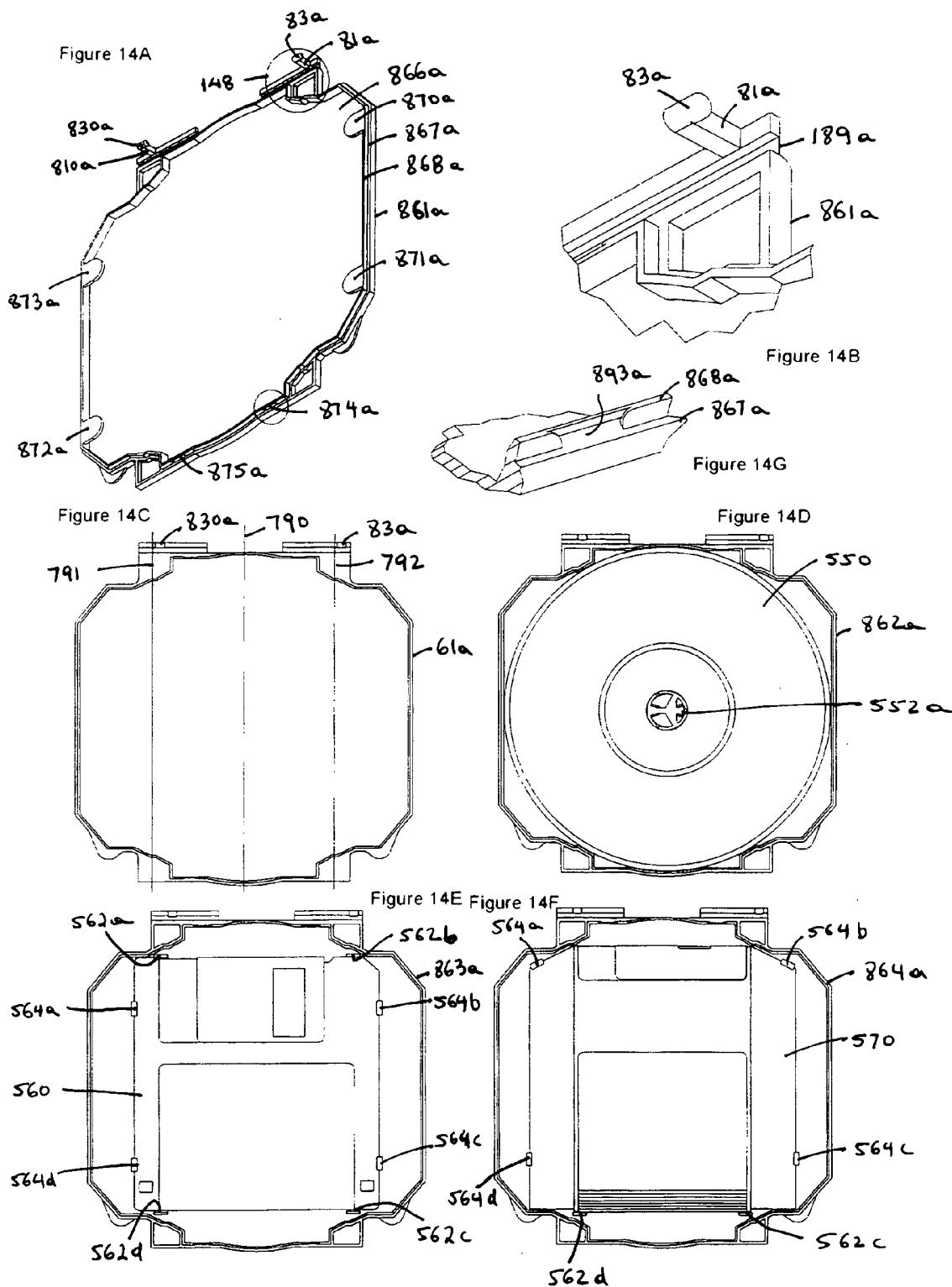


Figure 13B



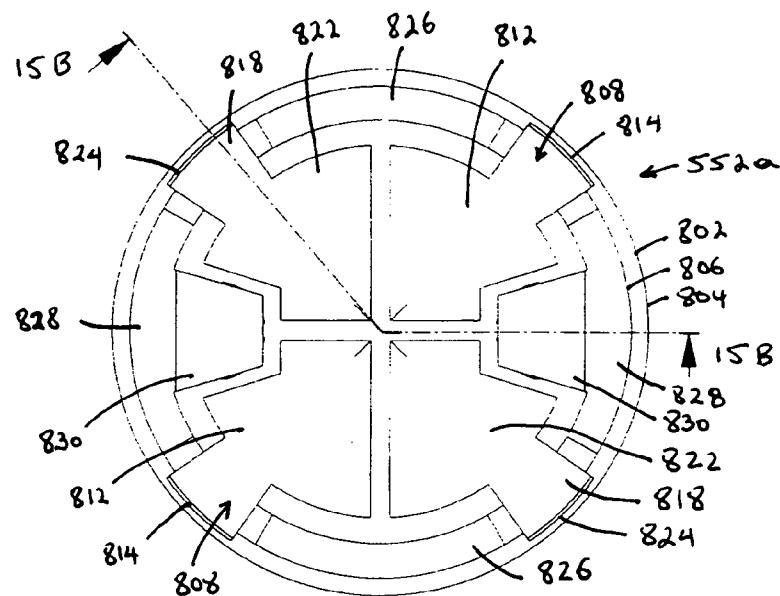


Figure 15A

Figure 15B

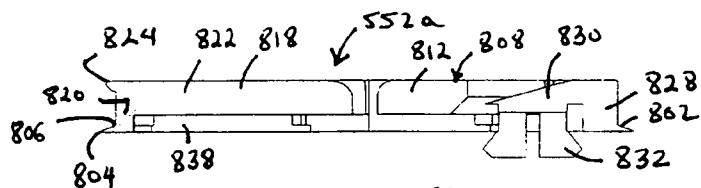


Figure 15D

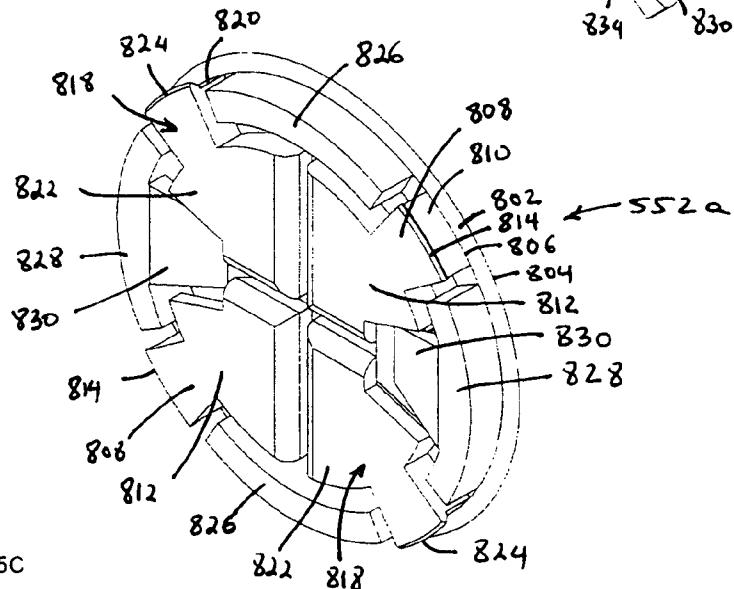
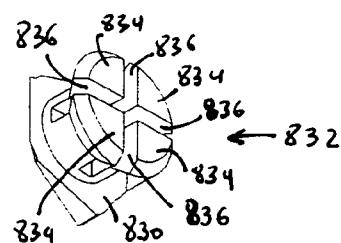


Figure 15C

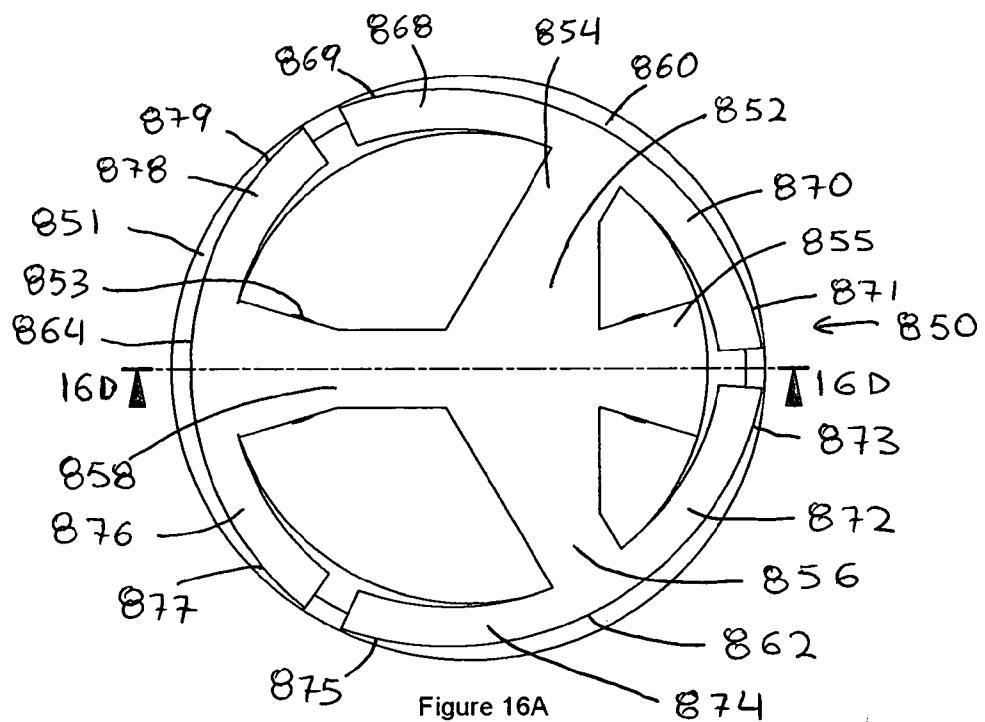


Figure 16A

Figure 16B

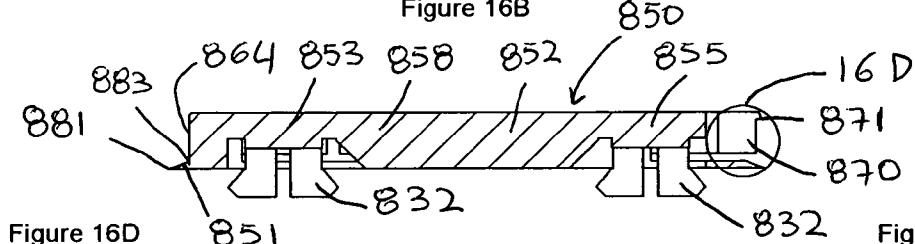


Figure 16D

Figure 16E

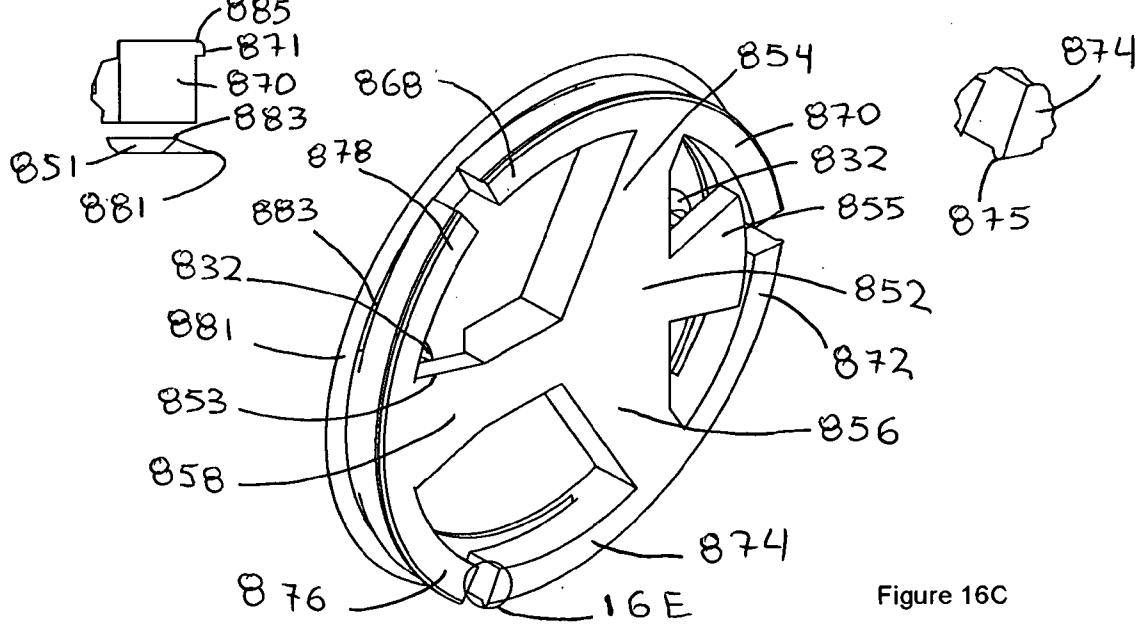
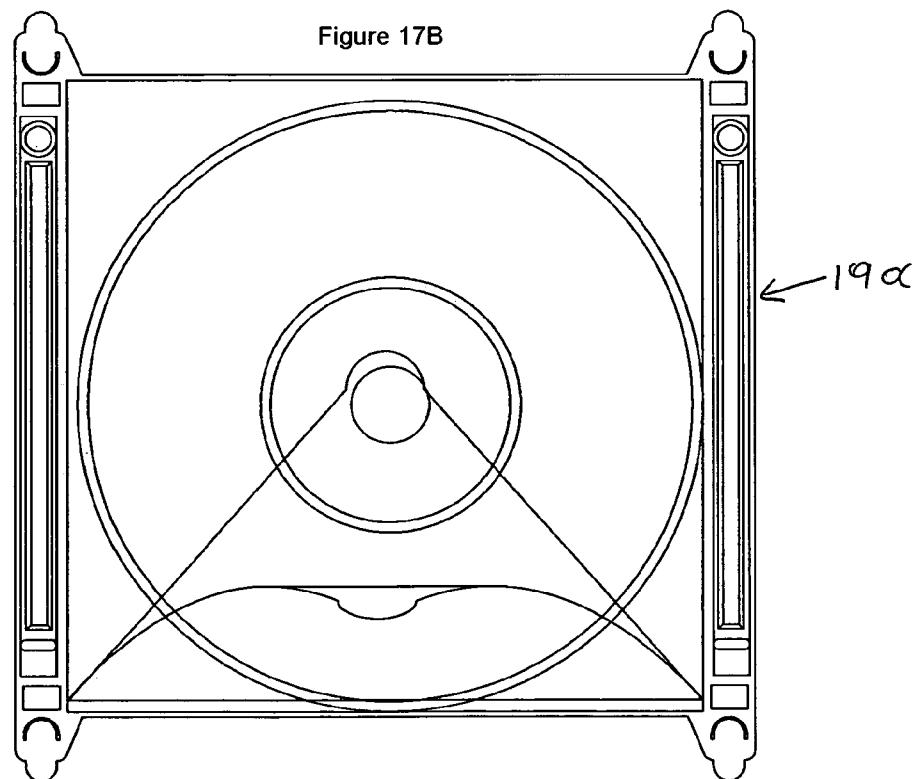
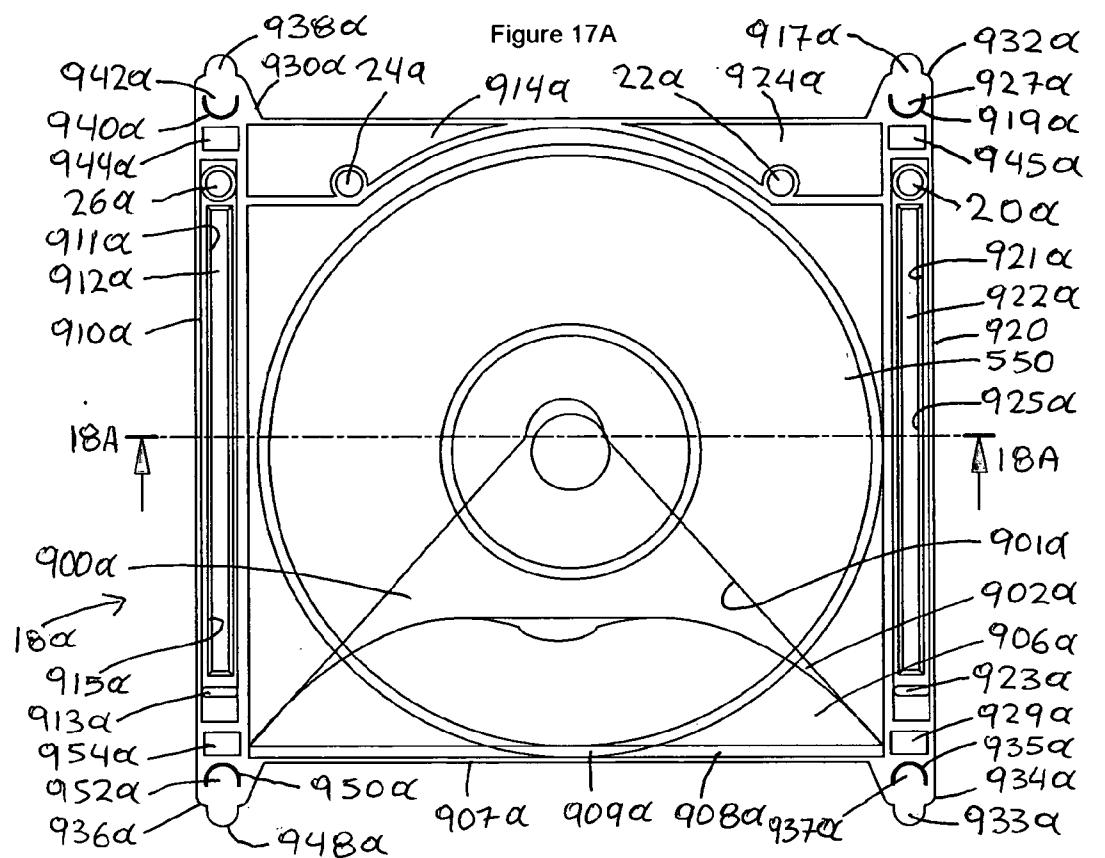


Figure 16C



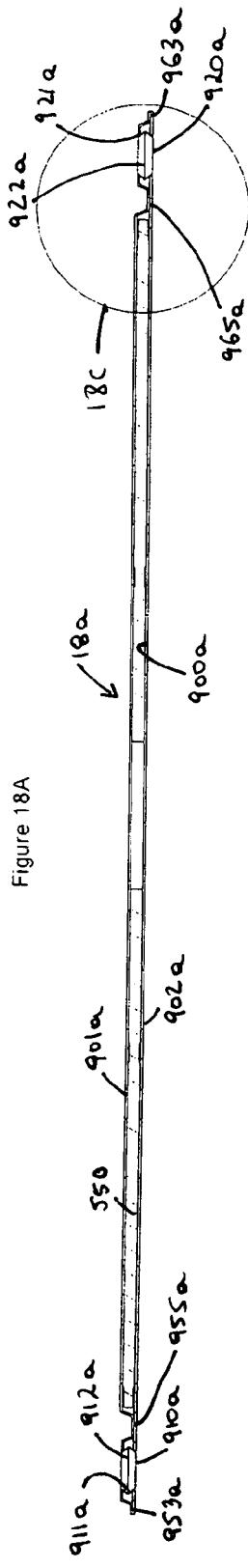


Figure 18A

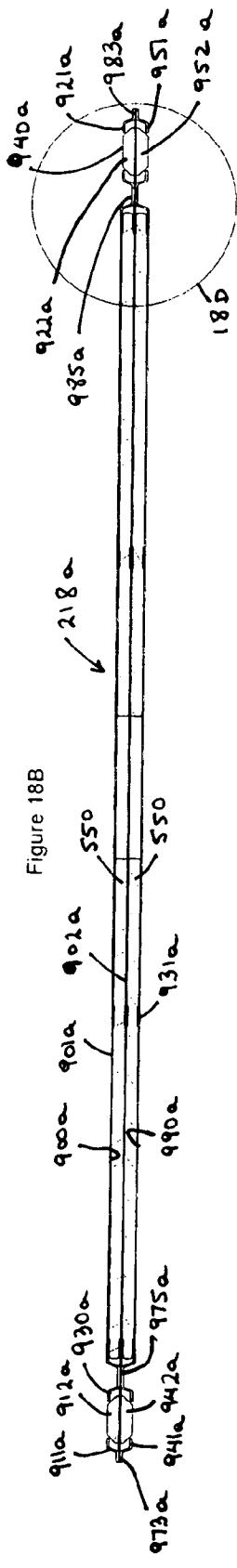


Figure 18B

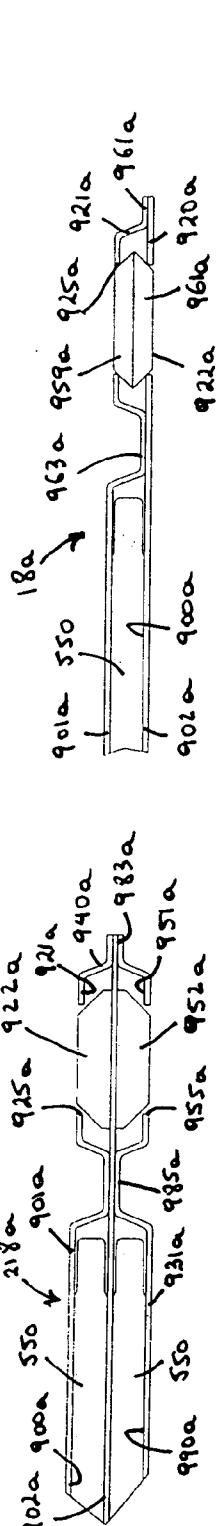
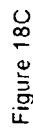
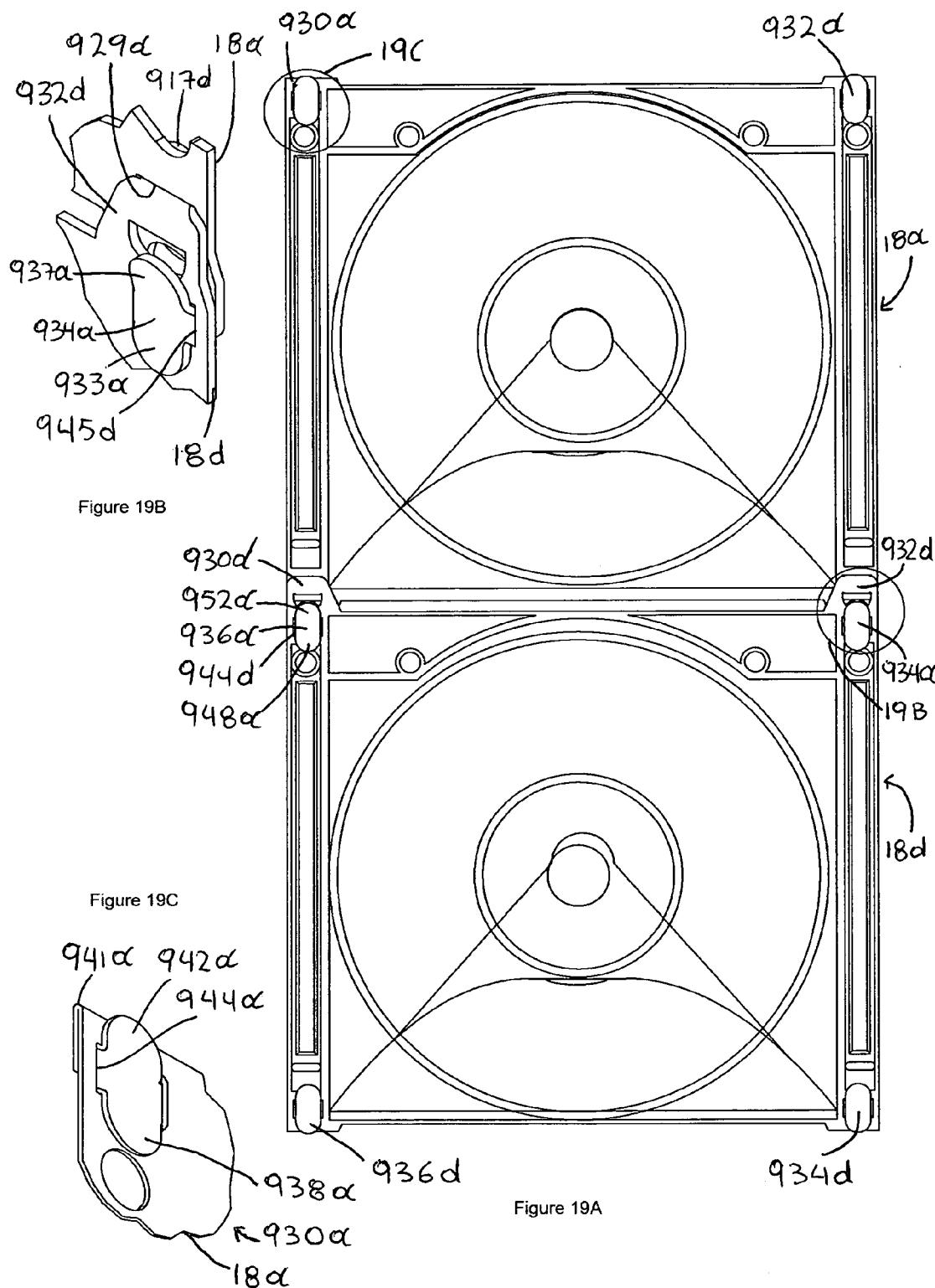


Figure 18D





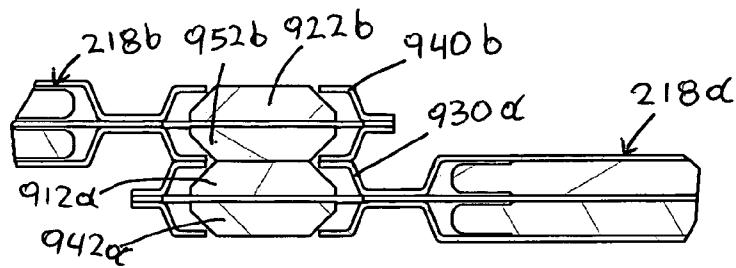


Figure 20C

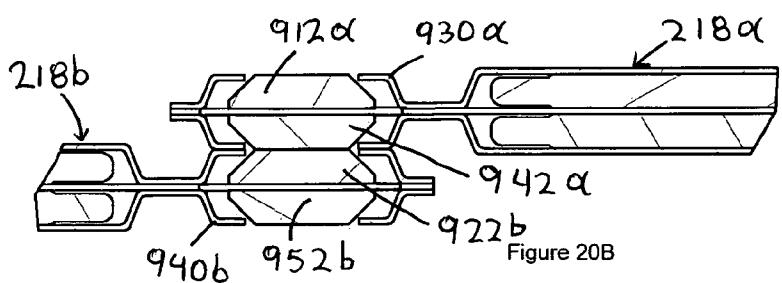
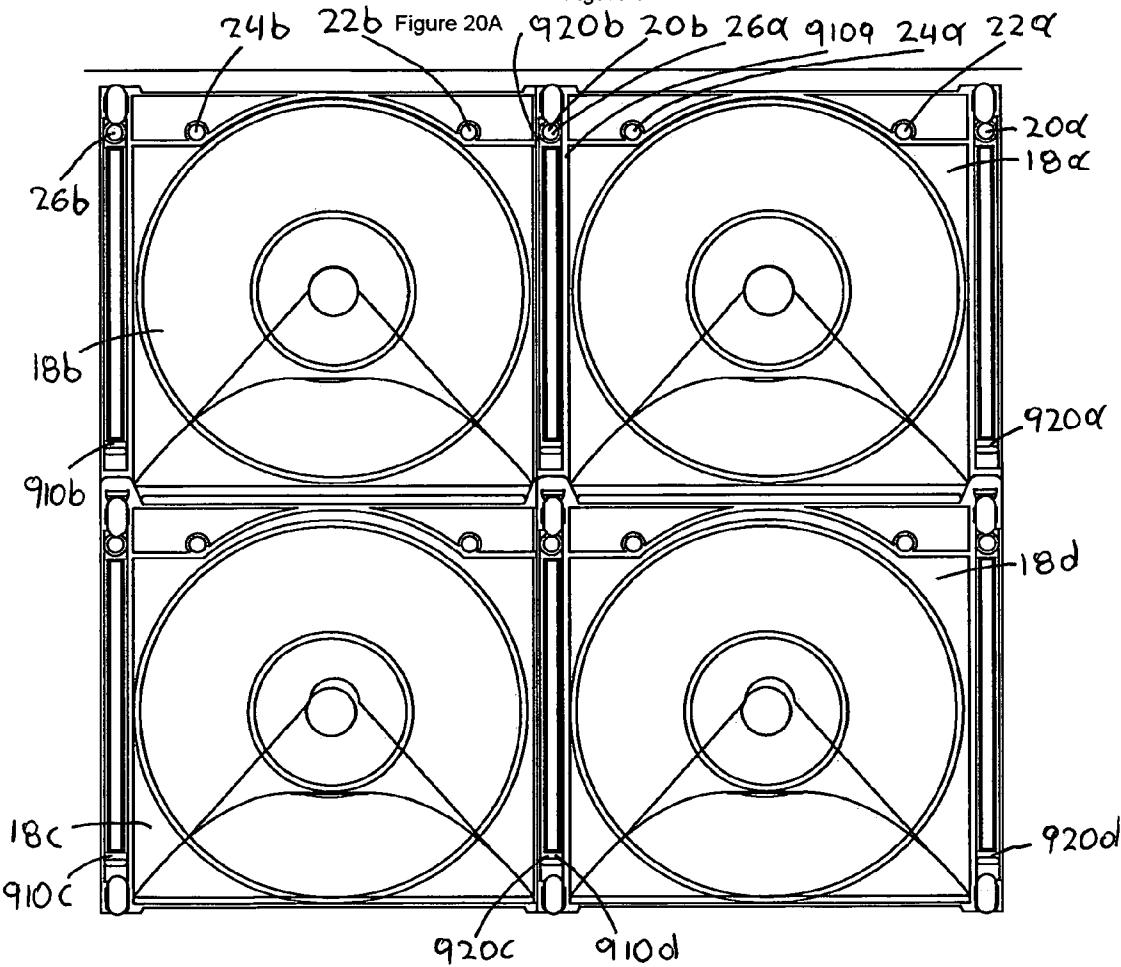


Figure 20B

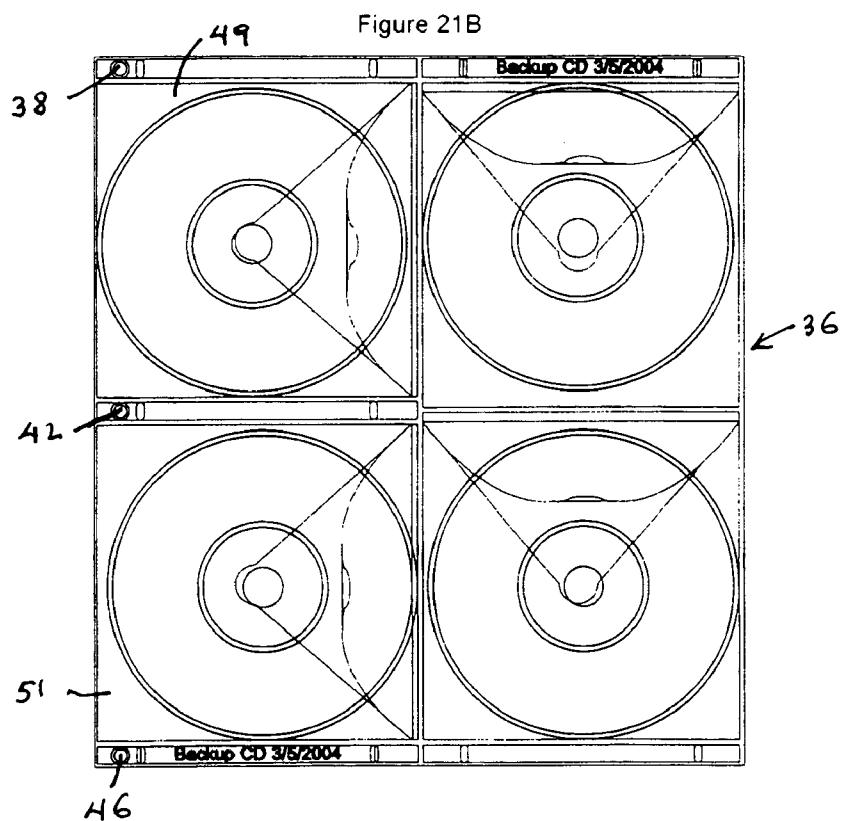
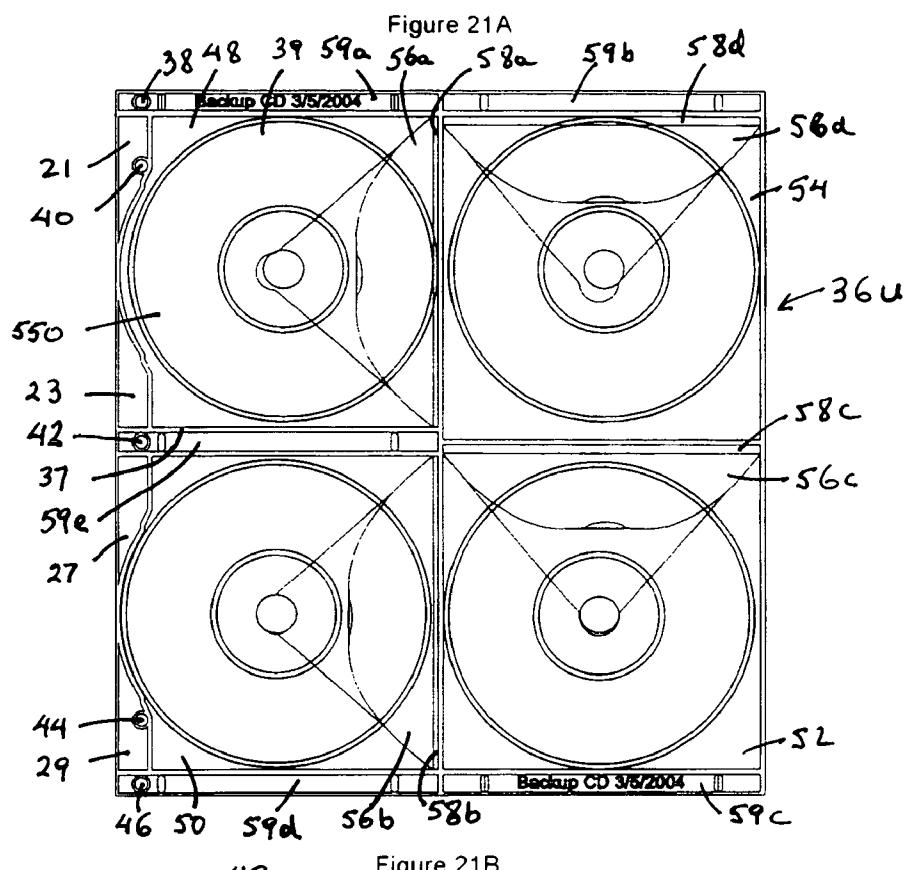


Figure 22A

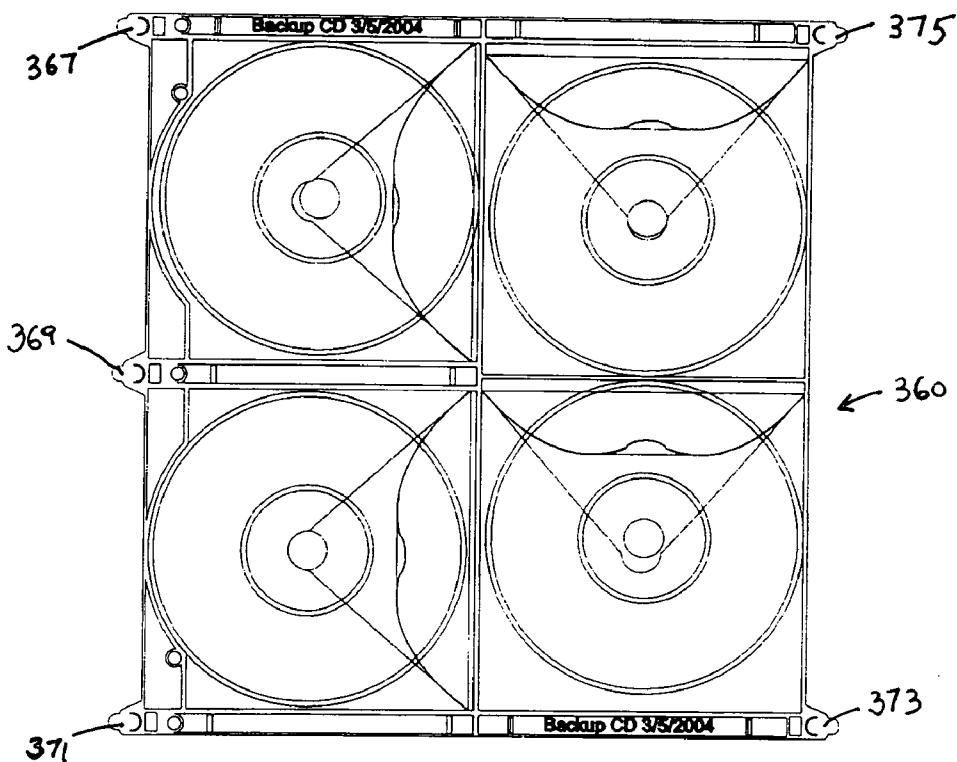
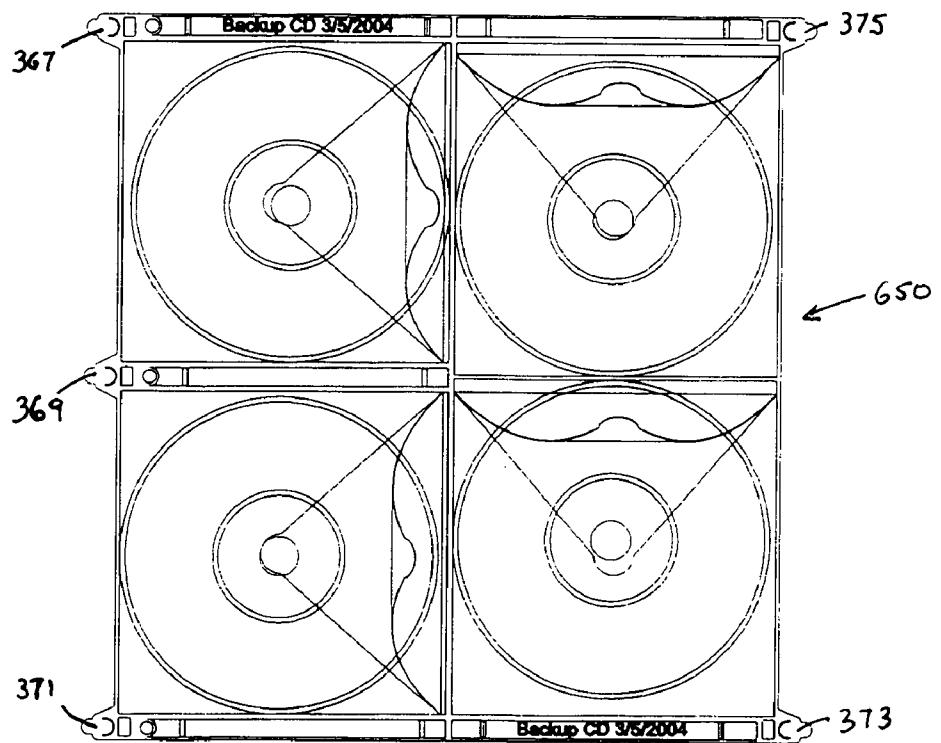


Figure 22B



## MEDIA STORAGE DEVICES

### RELATED PRIORITY DATE APPLICATION

[0001] This application claims the benefit under 35 U.S.C. 119(e) of the U.S. provisional application No. 60/576,794 filed on Jun. 3, 2004.

### TECHNICAL FIELD OF THE INVENTION

[0002] The present invention relates to media storage devices, and, more particularly, to devices for storing media such as compact disks, floppy disks, zip disks and the like including booklets accompanying such media. Still more particularly, the present invention discloses hard and soft media storage cases capable of being releasably interconnected with other similar cases. The media storage cases can be designed with higher storage capacity than conventional cases and are mountable in either conventional binders or binders with rings spaced apart at a higher distance than the rings in conventional binders.

### BACKGROUND OF THE INVENTION

[0003] Media storage devices for storing media such as compact disks, floppy disks, zip disks and the like are well known. Such media storage cases are available as hard cases or soft cases. They are usually mountable on conventional binders where the rings are spaced apart at a distance of about 108 millimeters. The requirement of placing mounting apertures at such distances limit the area where the media can be stored. Furthermore, in the hard cases, such a requirement causes the placement of the apertures in the thick portions of the case thereby making the flipping of the cases difficult.

[0004] The hard cases heretofore are available as individual cases. Further, the soft cases are either available as individual cases or as cases bonded to each other to form multiple pockets. As a result, one has to handle and carry a large number of individual units with resulting organizational problems.

[0005] The disadvantages of the prior art cases are overcome by providing cases, soft or hard that are releasably interconnected with each other to form units that are easy to organize and transport. The cases can be designed with higher storage capacity than conventional cases and are mountable to either conventional binders or binders with rings spaced apart at a higher distance than the rings in conventional binders.

[0006] These and other advantages of the present invention will become apparent from the following description and drawings.

### SUMMARY OF THE INVENTION

[0007] According to the present invention, hard and soft cases for storing media such as compact disks, floppy disks, zip disks or the like and booklets accompanying such media are disclosed. A hard case includes a housing with hooking mechanisms, on one end, and receptacles, on the other end, for interconnecting such a hard case with another similar case by receiving and removably engaging the hooking mechanisms in the receptacles. The hooking mechanisms disclosed are either an integral part of the case and the snapping engagement of the hooking mechanism is effected

by the spring like properties of the resilient material used in the construction of the case or mechanically activated snapping mechanisms which are placed in an engaging or disengaging position by pulling or releasing the same and by springs responding to such pulling or releasing. The case has side extensions which can be superimposed to connect it to another similar case and to effect the simultaneous turning of the connected cases. Four cases are connected by engaging the snapping mechanism of one case with the receptacles of another case and the side extension of one case with the side extension of another case to form a two by two array. The cases have holes on the body of the cases and on the side extensions so that the array can be mounted to a conventional binder where the distance between the rings is about 108 millimeters or to a novel binder disclosed by the present invention where the distance between the rings is about  $135\pm 5$  millimeters. The holes on the extension facilitate the mounting of the array on the rings of such binder.

[0008] The housing of the case may have one or two cargo areas, one on each side in the latter case. One standard design case cover is used to close the housings and can be mounted on either end of the housing. In one embodiment, the case cover is designed to house a medium.

[0009] Retaining mechanisms are attached to the body of the housing and the cover to hold the mediums. These retaining mechanisms are part of the body or are separate units that are connected to the body.

[0010] In one embodiment, a compact disk is retained by a retaining mechanism having release segments with flanges activated by activation members, guide ring segments and an elevation ring. When one presses down on the activation members, the release segments retract to allow the passing of the interior hole of the compact disk over the retracted flanges and allowing the compact disk to be intimately received over the segmented exterior cylindrical surface formed by the release segments and the guide ring segments. The compact disk rests on the elevation ring. When the pressure on the activation members is discontinued, the resilient release segments returning the retaining flanges to their resting position to retain the compact disk in the housing. The compact disk is released by pressing the resilient release segments to retract the retaining flanges and pass the compact disk over the retracted flanges.

[0011] In another embodiment, a compact disk retaining mechanism includes curved fingers with flanges and an elevation ring. In order to engage the compact disk with retaining mechanism the interior opening of the compact disk is aligned over the mechanism and the disk is pressed down on curved fingers. The pressure causes the curved fingers to move inwardly until the compact disk passes over the flanges and the disk comes to rest on the elevation ring. The fingers then expand to engage the compact disk.

[0012] In another embodiment, a soft case made by bonding together plastic sheets includes a pocket formed between a base sheet and a front sheet to house a compact disk. The pocket is closed by a flap. The soft case includes two straps extending from one end and two straps extending from the other to connect one case with another. The soft case includes extensions that extend outwardly from the sides of the soft case. Each extension has an elongate pouch for housing an elongate flat magnetic strip and an elongate non magnetic flat strip. When two cases are placed side by side,

the extensions overlap and the magnets retain the extensions in such overlapping position. A soft case has one pocket or two pockets, the latter having a pocket on each side. Four soft cases are connected to form an array that is mountable to a conventional binder or a binder with a larger distance between the rings as previously referred to in the summary regarding the hard cases.

[0013] In another embodiment, a page soft case made in accordance with the present invention for storing media is an integral flat piece constructed by bonding together plastic sheets. Each page case includes on one side four pockets in a two by two array configuration each pocket being suitable for receiving a medium. The open ends of the pockets are covered by flaps. In an alternative embodiment, similar pockets can be placed on the rear end of the page soft case in an arrangement which mirrors the arrangement set forth above to form a two sided page soft case having eight pockets. The page case can be mounted to a conventional binder or to a binder with rings being spaced apart at a greater distance as explained above. In another embodiment, straps are added to the ends of the page soft case to connect the page soft case to another case.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0014] For a detailed description of the preferred embodiments of the invention, reference will now be made to the accompanying drawings wherein:

[0015] FIG. 1A is a top perspective view of the general environment of the present invention showing hard and soft cases being mounted on a conventional binder;

[0016] FIG. 1B is a top perspective view of the general environment of the present invention showing hard cases and a page soft case being mounted on a binder made in accordance with the present invention;

[0017] FIG. 2A is a top plan view of the housings of two hard cases connected side by side;

[0018] FIG. 2B is a cross sectional view taken along line 2B-2B of FIG. 2A;

[0019] FIG. 2C is an enlargement of a portion of FIG. 2B;

[0020] FIG. 2D is an enlargement of a portion of FIG. 2B;

[0021] FIG. 2E is an enlargement of a portion of FIG. 2B;

[0022] FIG. 3A is a top plan view of the housings of two hard cases like those shown in FIG. 2A connected end to end;

[0023] FIG. 3B is an enlarged perspective view of a portion of a housing in FIG. 3A.

[0024] FIG. 3C is an enlargement of a portion of FIG. 3A;

[0025] FIG. 3D is an enlarged perspective view of a portion of a housing of FIG. 3A;

[0026] FIG. 4A is a top plan view of the housing of a hard case having an alternative hooking mechanism;

[0027] FIG. 4B is an enlarged perspective and partially exploded view of a portion of a housing of FIG. 4A showing the hooking mechanism in an engaging position;

[0028] FIG. 4C is the hooking mechanism of FIG. 4B in a disengaged position;

[0029] FIG. 4D is an enlarged perspective view of a portion of a housing of FIG. 4A showing the hooking mechanism;

[0030] FIG. 4E is an exploded view of the connection of the hitch to the body of the hooking mechanism of a housing of FIG. 4A;

[0031] FIG. 5A is a top plan view of the housing of a hard case having an alternative hooking mechanism;

[0032] FIG. 5B is an enlarged perspective and partially exploded view of a portion of a housing of FIG. 5A showing the hooking mechanism in an engaging position;

[0033] FIG. 5C is the hooking mechanism of FIG. 5B in a disengaged position;

[0034] FIG. 6A is a top plan and partially exploded view of the housing of a hard case having an alternative hooking mechanism;

[0035] FIG. 7A is a perspective, partially exploded view of the hooking mechanism of the housing of FIG. 6A in an engaging position;

[0036] FIG. 7B is the hooking mechanism of FIG. 7A in a disengaged position;

[0037] FIG. 7C is a perspective and partially exploded view of a portion of the hooking mechanism of FIG. 7A;

[0038] FIG. 8A is a perspective view of a housing of FIG. 2A with a compact disk not inserted in the housing;

[0039] FIG. 8B is a top plan view of the housing of FIG. 8A with the compact disk received in the housing;

[0040] FIG. 8C is a perspective view of another embodiment of housing of FIG. 8A having another design of a retaining mechanism with a compact disk not inserted in the housing;

[0041] FIG. 8D is a perspective view of a section of the housing of FIG. 8C showing an enlargement of the retaining mechanism;

[0042] FIG. 8E is a perspective view of a section of the housing of FIG. 8C showing an enlargement of the retaining mechanism with the compact disk attached to it;

[0043] FIG. 9A is a perspective view of a housing of FIG. 2A with a floppy disk not inserted in the housing;

[0044] FIG. 9B is a top plan view of the housing of FIG. 9A with the floppy disk received in the housing;

[0045] FIG. 9C is a perspective view of a housing of FIG. 2A with a zip disk not inserted in the housing;

[0046] FIG. 9D is a top plan view of the housing of FIG. 9C with the zip disk received in the housing;

[0047] FIG. 9E is a perspective view of a portion of FIG. 9A showing a space guide;

[0048] FIG. 9F is a perspective view of a portion of FIG. 9A showing a retaining mechanism;

[0049] FIG. 10A is a cross sectional view taken along line 10A-10A of FIG. 3A.

[0050] **FIG. 10B** is a cross section of a housing of a hard case made in accordance with the present invention having two recessed cavities, one on each side to house a medium in each cavity;

[0051] **FIG. 10C** is an enlarged view of a portion of **FIG. 10A**;

[0052] **FIG. 10D** is an enlarged view of a portion of **FIG. 10B**;

[0053] **FIG. 11A** is a fragmented top plan view of a housing of a hard case made in accordance with the present invention having two recessed cavities, one on each side, to house a medium in each cavity;

[0054] **FIG. 11B** is an enlargement of a portion of **FIG. 11A**;

[0055] **FIG. 11C** is a perspective view of a portion of the housing shown in **FIG. 11B**;

[0056] **FIG. 12A** is a perspective of hard case having a housing of **FIG. 2A** with a case cover connected to it on the end that is mountable to a binder;

[0057] **FIG. 12B** is a perspective of a hard case having a housing of **FIG. 2A** with a case cover connected to it on the end that is opposite to the end that it is connected to in **FIG. 12A**;

[0058] **FIG. 12C** is an enlarged perspective view of a portion of the hard case of **FIG. 12A** showing the connection between the case cover and the housing;

[0059] **FIG. 12D** is an enlarged perspective view of a portion of the hard case of **FIG. 12B** showing the connection between the case cover and the housing;

[0060] **FIG. 12E** is an enlarged perspective view of a portion of the hard case of **FIG. 12A** showing the connection between the case cover and the housing;

[0061] **FIG. 13A** is a perspective view of a housing of **FIG. 11A** having two case covers connected thereto;

[0062] **FIG. 13B** is an enlarged perspective view of a portion of the hard case of **FIG. 13A** showing the connection between the case covers and the housing;

[0063] **FIG. 14A** is a perspective view of a case cover which includes a media storage compartment;

[0064] **FIG. 14B** is an enlarged perspective view of a portion of the case cover of **FIG. 14A**;

[0065] **FIG. 14C** is a plan view of the inside of a case cover without a media storage compartment;

[0066] **FIG. 14D** is a plan view of the inside of a case cover without a media storage compartment configured to receive a compact disk;

[0067] **FIG. 14 E** is a plan view of the inside of a case cover without a media storage compartment configured to receive a floppy disk;

[0068] **FIG. 14F** is a plan view of the inside of a case cover without a media storage compartment configured to receive a zip disk;

[0069] **FIG. 14G** is an enlarged view of a portion of the case cover of **FIG. 14A** showing a locking mechanism that locks the case cover to the housing;

[0070] **FIG. 15A** is a top plan view of a retaining mechanism of a hard case;

[0071] **FIG. 15B** is a cross sectional view of the retaining mechanism of **FIG. 15A** taken along lines A and B of **FIG. 15A**;

[0072] **FIG. 15C** is a perspective view of the retaining mechanism of **FIG. 15A**;

[0073] **FIG. 15D** is a perspective view of a retaining pin of the retaining mechanism of **FIG. 15A**;

[0074] **FIG. 16A** is a top plan view of another retaining mechanism of a hard case;

[0075] **FIG. 16B** there is a cross sectional view of the retaining mechanism of **FIG. 16A** taken along line 16D-16D of **FIG. 16A**;

[0076] **FIG. 16C** is a perspective view of the retaining mechanism of **FIG. 16A**;

[0077] **FIG. 16D** is an enlargement of a portion of **FIG. 16B**;

[0078] **FIG. 16E** is an enlargement of a portion of **FIG. 16C**;

[0079] **FIG. 17A** is a top plan view of a soft case made in accordance with the present invention;

[0080] **FIG. 17B** is a top plan view of another soft case made in accordance with the present invention;

[0081] **FIG. 18A** is a cross sectional view taken along line 18A-18A of **FIG. 17A**;

[0082] **FIG. 18B** is a cross sectional view of a soft case having two pockets, one on each side;

[0083] **FIG. 18C** is an enlargement of section of **FIG. 18A**;

[0084] **FIG. 18D** is an enlargement of a section of **FIG. 18B**;

[0085] **FIG. 19A** is a top plan view showing two soft cases connected in accordance with the present invention;

[0086] **FIG. 19B** is an enlarged perspective view of a portion of **FIG. 19A** showing a connection between the two soft cases;

[0087] **FIG. 19C** is an enlarged perspective view of a portion of **FIG. 19A** showing a folded strap that is not being used to connect the two soft cases;

[0088] **FIG. 20A** is a top plan view of four soft cases connected in accordance with the present invention;

[0089] **FIG. 20B** is a fragmented cross sectional view of the connection between the sides of two double pocket soft cases;

[0090] **FIG. 20C** is a fragmented cross sectional view of an alternative connection between the sides of two double pocket soft cases;

[0091] **FIG. 21A** is a top plan view of a page soft case having four pockets on one side;

[0092] **FIG. 21B** is a top plan view of another embodiment of a page soft case having four pockets on one side;

[0093] FIG. 22A is a top plan view of the case of FIG. 21A with straps; and

[0094] FIG. 22B is a top plan view of the case of FIG. 21B with straps.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0095] Referring now to FIG. 1A, there is shown a perspective view of a conventional binder 2 having rings 4a, 4b and 4c which are equally spaced apart for pivotally receiving media cases. The distance between ring 4a and 4b and ring 4b and 4c is the presently used standard distance of 108 millimeters. Four identical hard cases 6a, 6b, 6c and 6d made in accordance with the present invention are connected, as hereinafter described, to form a two by two array 6 which is pivotally connected to binder 2. Case 6a has holes 10a, 12a, 14a and 16a and case 6b has holes 10b, 12b, 14b and 16b. In the assembled position shown in FIG. 1A, hole 10b overlaps hole 16a and pivotally receive ring 4b. Holes 12a and 14b pivotally receive rings 4a and 4c, respectively.

[0096] Hard cases 6a, 6b, 6c and 6d can be made of hard plastic with some flexibility as in the conventional art of hard media cases. The media cases may be used to store computer disks, compact disks, back up disks or the like. A case such as case 6a may be constructed so as to store from one to four media.

[0097] Still referring to FIG. 1A, four identical soft cases 18a, 18b, 18c and 18d, made in accordance with the present invention, as hereinafter described, are connected, as hereinafter described, to form a two by two array 18 which is pivotally connected to binder 2. Case 18a has holes 20a, 22a, 24a and 26a and case 18b has holes 20b, 22b, 24b and 26b. In the assembled position shown in FIG. 1A, hole 20b overlaps hole 26b and pivotally receive ring 4b. Holes 22a and 24b pivotally receive rings 4a and 4c, respectively.

[0098] Soft cases 18a, 18b, 18c and 18d can be made of soft plastic with considerable flexibility as in the conventional art of soft media cases. A case such as case 18a may be constructed by bonding plastic sheets together to form one or two pockets (if double sided) for storing one medium in each pocket.

[0099] Referring now to FIG. 1B, there is shown a perspective view of a binder 32 made in accordance with the present invention having rings 34a, 34b and 34c which are equally spaced apart for pivotally receiving media cases. The distance between ring 34a and 34b and ring 34b and 34c is 135±5 millimeters which is larger than the presently used standard distance of 108 millimeters. Four identical hard cases 6a, 6b, 6c and 6d, such as the ones previously described, form a two by two array 6 which is pivotally connected to binder 32. In the assembled position shown in FIG. 1B, hole 10b overlaps hole 16b and holes 10b and 16b in said overlapped position pivotally receive ring 4b. Holes 10a and 16b pivotally receive rings 34a and 34c, respectively.

[0100] Still referring to FIG. 1B, a page soft case 36 made in accordance with the present invention for storing media has holes 38, 42 and 46 and is pivotally connected to binder 32 with holes 38, 42 and 46 pivotally receiving rings 34a, 34b and 34c, respectively. Page soft case 36 is an integral flat piece made of well known soft plastic material commonly

used for the construction of soft media cases by bonding plastic sheets together. Case 36 includes, on one side, four pockets 49, 51, 52 and 54 closed by flaps, in a two by two array configuration, each pocket being suitable for receiving a medium. Page soft case 36 is described in detail hereinafter in connection with FIG. 21B.

[0101] The use of binder 32 with the rings being spaced apart at a distance of 135±5 millimeters allows for the use of case 36 with pockets which are larger than the pockets in conventional page soft cases to facilitate the storage of larger media and accompanying written material. The other flat side of page soft case 36 which is not shown in FIG. 1B may include similar pockets and flaps to accommodate the storage of four additional media.

[0102] Referring now back to FIG. 1A or FIG. 1B, each of identical hard cases 6a, 6b, 6c and 6d generally includes a housing and one or two covers for one or two sided cases, respectively, which will be described in more detail hereinafter. Referring now to FIG. 2A there are shown identical housings 60a and 60b of cases 6a and 6b, respectively, aligned for connection to binder 2 which is not shown in FIG. 2A but is shown in FIG. 1A or binder 32 which is not shown in FIG. 2A but is shown in FIG. 1B. Housing 60a includes a recessed cavity 66a suitably configured and dimensioned for receiving the media (not shown). Cavity 66a includes a wall 70a, on one end, and a wall 72a, on the other end. An extension 62a extends outwardly from and vertically to wall 70a having a lower surface on substantially the same level as the middle point of wall 70a. An extension 64a extends outwardly from and vertically to wall 72a having an upper surface on substantially the same level as the middle point of wall 72a. Housing 60a includes a hole 10a disposed on extension 62a, a hole 12a, a hole 14a and a hole 16a disposed on extension 64a. Holes 10a, 12a, 14a and 16a are positioned on a straight line and the distance between hole 10a and hole 14a is substantially equal to the distance between holes 12a and 16a. That distance is about 108 millimeters. The distance between holes 10a and 16a is about 135±5 millimeters.

[0103] Housing 60a includes case cover mountings 63a and 65a, on one end, and case cover mountings 67a and 69a, on the other end, for mounting a case cover (not shown), as hereinafter described. Housing 60a includes projections 163a and 165a projecting inwardly in cavity 66a from a wall 171a and projections 167a and 169a projecting inwardly in cavity 66a from a wall 173a.

[0104] Housing 60b is identical to housing 60a and the parts of housing 60b corresponding to the parts of housing 60a are designated by the same number followed by the letter "b" substituting for letter "a." Accordingly, housing 60b includes a cavity 66b with a wall 70b and a wall 72b, an extension 62b extending from wall 70b, an extension 64b extending from wall 72b, a hole 10b disposed on extension 62b, a hole 12b, a hole 14b and a hole 16b disposed on extension 64b.

[0105] Still referring to FIG. 2A, identical housings 60a and 60b are aligned for connection to binder 32 (not shown in FIG. 2A but shown in FIG. 1B) by superimposing extension 62a over extension 64a and hole 10b over hole 16a. In that position, holes 10a, 12a, 14a, 16a, 10b, 12b, 14b and 16b are positioned in a straight line for connection to binder 2, as the one shown in FIG. 1A or binder 32, as the one shown in FIG. 1B, as previously described.

[0106] Referring now to FIG. 2B, there is shown a cross sectional view of housings 60a and 60b taken along line 2B-2B of FIG. 2A. Housing 60a has extension 62a, on one side, and extension 64a, on the other side. Similarly, housing 60b has extension 62b, on one side, and extension 64b, on the other side. Extension 62b is disposed over extension 64a.

[0107] FIG. 2C shows an enlargement of the portion of the apparatus of FIG. 2B that is encircled by circle 2C. There is shown housing 60a having recessed cavity 66a and extension 64a extending outwardly from wall 72a. Extension 64a has a reduced width portion 76a adjacent to wall 72a formed by channels 82a and 84a, on the upper and bottom surfaces of extension 64a, respectively. Channels 82a and 84b have curved troughs. Thus, extension 64a is more flexible at reduced width portion 76a to allow it to deviate from its original position when a biasing force is applied on the upper or lower surface thereof. There is also shown housing 60b having recessed cavity 66b and extension 62b extending outwardly from wall 70b. Extension 62b has a reduced width portion 74b adjacent to wall 70b formed by channels 78b and 80b, on the upper and bottom surfaces of extension 62b, respectively. Channels 78b and 80b have curved troughs. Thus extension 62b is more flexible at reduced width portion 74b to allow it to deviate from its original position when a biasing force is applied on the upper or lower surface thereof. Extension 62b is intimately superimposed over and abuts extension 64a. The distant end of extension 62b abuts the exterior surface of wall 72a. The distant end of extension 64a abuts the exterior surface of wall 70b. The upper surface of extension 62b is substantially on the same plane as the upper surfaces of walls 72a and 70b. The lower surface of extension 64a is substantially on the same plane as the lower surfaces of walls 72a and 70b.

[0108] Referring now to FIG. 2D, there is shown an enlargement of the portion of the apparatus of FIG. 2B that is encircled by circle 2D. Housing 60b with recessed cavity 66b and wall 72b has extension 64b with a reduced thickness portion 76b formed by channels 82b and 84b.

[0109] FIG. 2E shows an enlargement of the portion of the apparatus of FIG. 2B that is encircled by circle 2E. Housing 60a with recessed cavity 66a and wall 70a has extension 62a with a reduced thickness portion 74a formed by channels 78a and 80a.

[0110] Referring back to FIG. 2A, when housings 60a and 60b are connected as shown and inserted into binder 2 (shown in FIG. 1A) or binder 32 (shown in FIG. 1B), the turning of housing 60a from right to left (western style) causes extension 64a to lift extension 62b thereby turning housing 60b at the same time. If one wishes to simultaneously turn housings 60a and 60b from left to right, he may do so by turning housing 60b from left to right thereby turning housing 60a therewith. It should be understood that housings 60a and 60b may be modified by symmetrically changing the location of extensions 62a, 64a, 62b and 64b so that extension 64a is superimposed over extension 62b. Referring to FIG. 2F, there is shown that modification wherein extension 64a of housing 60a is superimposed over extension 62b of housing 60b. In that case, housings 66a and 66b could be turned simultaneously from left to right by turning housing 60a from left to right.

[0111] As it can be appreciated from the description above, extensions 62a, 64a, 62b and 64b are thinner than

housings 60a and 60b. Accordingly, the use of extensions 62a, 64a, 62b and 64b with holes thereon to insert the rings of binders such as binder 32 of FIG. 1B makes the turning of the hard cases easier than it would be if the rings were inserted in holes in the thicker portions of housings 60a and 60b.

[0112] Referring now to FIG. 3A there are shown housings 60a and 60d of cases 6a and 6d, respectively, connected to form half of array 6 shown in FIG. 1A or FIG. 1B. Housing 60a includes, on one end, an inwardly facing hooking mechanism 90a and an inwardly facing hooking mechanism 92a which is a mirror image of hooking mechanism 90a. On the other end, housing 60a includes an outwardly facing receptacle 94a and an outwardly facing receptacle 96a which is a mirror image of receptacle 94a. Housing 60d is identical to housing 60a and the corresponding parts thereof are designated by the same numbers as the ones used for housing 60a followed by the letter "d" substituting for the letter "a." Accordingly, housing 60d includes a hooking mechanism 90d, a hooking mechanism 92d, a receptacle 94d and a receptacle 96d. Housing 60d is connected to housing 60a by snappingly inserting hooking mechanisms 90d and 92d into receptacles 94a and 96a, respectively, as hereinafter described in more detail.

[0113] Still referring to FIG. 3A, hooking mechanism 90a is an integral part of housing 60a and includes a support portion 100a, an extension 102a depending from support portion 100a and a peg 104a extending inwardly from the upper portion of extension 102a. Hooking mechanism 90a is adjacent to the end portion of extension 62a but it is not connected therewith. A small gap 108a is between hooking mechanism 90a and extension 62a to allow for a limited movement of hooking mechanism 90a towards extension 62a when a biasing force is applied thereon. Housing 60a includes a semicircular notch 106a adjacent to support portion 100a for placing the fingers to open the case. Hooking mechanism 92a is an integral part of housing 60a and includes a support portion 110a, an extension 112a depending from support portion 110a and a peg 114a extending inwardly from the upper portion of extension 112a. Hooking mechanism 92a is adjacent to the end portion of extension 64a but it is not connected therewith. A small gap 118a is between support portion 110a and extension 64a to allow for a limited movement of hooking mechanism 92a towards extension 64a when a biasing force is applied thereon. Housing 62a includes a semicircular notch 116a adjacent to support portion 110a for placing the fingers to open the case.

[0114] Referring now to FIG. 3B, there is shown an enlarged perspective view of the portion of housing 60a which is in circle 3B in FIG. 3A. There is shown hooking mechanism 92a adjacent to notch 116a and extension 64a. Hooking mechanism 92a has support portion 110a, extension 112a and peg 114a.

[0115] Referring now back to FIG. 3A, housing 60d includes hooking mechanism 90d which is identical with hooking mechanism 90a. Hooking mechanism 90d is an integral part of housing 60d and includes a support portion 100d, an extension 102d depending from support portion 100d and a peg 104d extending inwardly from the upper portion of extension 102d. Hooking mechanism 92d is adjacent to the end portion of extension 62d. A small gap

**108d** is between support portion **100d** and extension **62d** to allow for a limited movement of hooking mechanism **90d** towards extension **62d** when a biasing force is applied thereon. Housing **62d** includes a semicircular notch **106d** adjacent to support portion **100d**.

[0116] Hooking mechanism **92d** is identical with hooking mechanism **92a**. Hooking mechanism **92d** is an integral part of housing **60d** and includes a support portion **10d**, an extension **112d** depending from support portion **10d** and a peg **1141d** extending inwardly from the upper portion of extension **112d**. Hooking mechanism **92d** is adjacent to the end portion of extension **64d** but it is not connected therewith. A small gap **118d** is between support portion **110d** and extension **64d** to allow for a limited movement of hooking mechanism **92d** towards extension **64d** when a biasing force is applied thereon. Housing **62d** includes a semicircular notch **116d** adjacent to support portion **110d**.

[0117] Receptacle **94a** is an integral part of housing and includes an outwardly facing cavity formed by a bottom blind bore and two opposite facing, spaced apart walls **120a** and **122a** having arch shaped interior surfaces. The cavity of receptacle **94a** is appropriately shaped and sized so as to intimately receive peg **104d** by a snapping action and to retain peg **104d** therein by the restoring spring action of walls **130a** and **132a**. As peg **104d** is inserted therein, walls **120a** and **122a** are biased away from each other. When peg **104d** settles in receptacle **94a**, the restoring spring force of walls **120a** and **122a** causes them to snap around peg **104d** and to retain it therein until another force is applied thereon to disengage.

[0118] Receptacle **96a** is an integral part of housing and is symmetrical to receptacle **94a**. Receptacle **96a** includes an outwardly facing cavity formed by a bottom blind bore and two opposite facing, spaced apart walls **130a** and **132a** having arch shaped interior surfaces. The cavity of receptacle **94a** is appropriately shaped and sized so as to intimately receive peg **114d** by a snapping action and to retain peg **114d** therein by the restoring spring action of walls **130a** and **132a**. As peg **114d** is inserted therein, walls **130a** and **132a** are biased away from each other. When peg **114d** settles in receptacle **94a**, the restoring spring force of walls **130a** and **132a** causes them to snap around peg **114d** and to retain it therein until another force is applied thereon to disengage. Housing **60d** is connected to housing **60a** by engaging hooking mechanism **90d** with receptacle **94a** by snappingly inserting peg **104d** in the cavity of receptacle **94a**, as previously described, and by engaging mechanism **92d** with receptacle **96a** by snappingly inserting peg **114d** in the cavity of receptacle **96a**. In that connected position, pegs **104d** and **114d** act as pivot for housing **60d** with respect to housing **60a** and vice versa.

[0119] Referring now to FIG. 3C, there is shown an enlargement of that section of FIG. 3A which is within circle 3C showing housing **60a** connected to housing **60d** via the engagement of hooking mechanism **92d** with receptacle **96a**. Hooking mechanism **92d** includes a support portion **110d**, extension **112d** depending from support portion **110d** and peg **114d** extending inwardly from the upper portion of extension **112d**. Hooking mechanism **92d** is adjacent to the end portion of extension **64d** but it is not connected therewith. Gap **118d** is between support portion **10d** and extension **64d** to allow for a limited movement of hooking

mechanism **92d** towards extension **64d** when a biasing force is applied thereon. Receptacle **96a** includes two opposite facing, spaced apart walls **130a** and **132a** having arch shaped interior surfaces. The cavity of receptacle **94a** is appropriately shaped and sized so as to intimately receive peg **114d** by a snapping action and to retain peg **114d** therein by the restoring spring action of walls **130a** and **132a**. As peg **114d** is inserted therein, walls **130a** and **132a** are biased away from each other. When peg **114d** settles in receptacle **94a**, the restoring spring force of walls **130a** and **132a** causes them to snap around peg **114d** and to retain it therein as shown in FIG. 3C.

[0120] Referring back to FIG. 3A, housing **60d** has a receptacle **94d** which is identical with receptacle **94a**. Receptacle **94d** is an integral part of housing and includes an outwardly facing cavity formed by a bottom blind bore and two opposite facing, spaced apart walls **120d** and **122d** having arch shaped interior surfaces. Housing **60d** further includes a receptacle **96d** which is identical with receptacle **96a**. Receptacle **96d** is an integral part of housing and is symmetrical to receptacle **94d**. Receptacle **96d** includes an outwardly facing cavity formed by a bottom blind bore and two opposite facing, spaced apart walls **130d** and **132d** having arch shaped interior surfaces. FIG. 3D is an enlarged perspective view of the section of FIG. 3A which is encircled by circle 3D. There is shown housing **60d** having receptacle **96d** with opposite facing walls **130d** and **132d** and an inner cavity to receive the hooking mechanism.

[0121] Referring to FIGS. 1A, 2B and 3A, when the housing of case **6c** is connected to housing **60b** of case **6b** the way housing **60d** of case **6d** is connected to housing **60a** of case **6a** and when the housing of case **6c** is connected to housing **60d** of case **6d** the way housing **60b** of case **6b** is connected to housing **60a** of case **6a**, array **6** is formed. In a western style configuration, the entire array of four cases may can be flipped from right to left by flipping case **6a** or case **6b**.

[0122] In housings **60a**, **60b**, **60c** and **60d** described above, the hooking mechanisms associated therewith are an integral part of the housing. For example, in housing **60d**, hooking mechanisms **90d** and **92d** are an integral part of housing **60d** and the disengagement or engagement of those mechanisms from or with receptacles **94a** and **96a**, respectively, is effected by the inherent spring and elastic properties of the material. In another embodiment of the present invention, hooking mechanisms **90d** and **92d** are replaced by sliding hooking mechanisms that engage the receptacles by sliding in and out to engage and disengage the receptacles.

[0123] Referring to FIG. 4A, there is shown a housing **200** which is similar to housing **60d**, except that it is modified to replace the integral hooking mechanisms **90d** and **92d** with inwardly facing sliding hooking mechanisms **190** and **192**, respectively. Hooking mechanism **190** has a peg **204** similar to but longer than peg **104d** and hooking mechanism **192** has a peg **214** similar to but slightly longer than peg **114d**. Housing **200** includes receptacles **194** and **196** which are identical to receptacles **94a** and **96a** (shown in FIGS. 3A and 3C), respectively. Receptacles **194** and **196** are configured so as to intimately receive pegs **204** and **214**, respectively. Hooking mechanisms **190** and **192** are slidable to place pegs **204** and **214** in engaging or disengaging positions in or away from receptacles similar to receptacles **194** and **196** in another housing.

[0124] Hooking mechanisms 190 and 192 include internal springs that are designed to bias and hold hooking mechanisms 190 and 192 to the engaging position, that is the position that pegs 204 and 214 are engagingly inserted in the receptacles, unless a pulling force is applied on hooking mechanisms 190 or 192. In FIG. 4A, hooking mechanism 190 is shown in the engaging position. Hooking mechanism 190 is activated by grasping at a hitch 220 and pulling opposite to the biasing force of the spring to displace away from housing 200 and disengage the receptacle. Once hitch 220 is released, hooking mechanism 190 returns to the engaging position because of the spring force. In FIG. 4A, hooking mechanism 192 is shown in the disengaging position after it is activated by grasping at a hitch 222 and pulling opposite to the biasing force of the spring. Once hitch 222 is released, hooking mechanism 192 returns to the engaging position.

[0125] Housing 200 includes a recessed cavity 266 which is suitable dimensioned and configured to receive the media. Cavity 266 includes a wall 270, on one end, and a wall 272, on the other end. An extension 262 extends outwardly from and vertically to wall 270 having a lower surface on substantially the same level as the middle point of wall 270. An extension 264 extends outwardly from and vertically to wall 272 having an upper surface on substantially the same level as the middle point of wall 272. Housing 200 includes a hole 210, a hole 212, a hole 214 and a hole 216. Holes 210, 212, 214 and 216 are positioned on a straight line and the distance between hole 210 and hole 214 is substantially equal to the distance between holes 212 and 216. That distance is about 108 millimeters. The distance between holes 210 and 216 is about 135±5 millimeters.

[0126] Referring now to FIG. 4B, there is shown an enlarged view of a perspective, partially exploded view of the section of housing 200 and hooking mechanism 190 within circle B of FIG. 4A. Hooking mechanism 190 with peg 204 has a guide opening 228 and is mounted on housing 200 by inserting a stationary cylinder 226 extending from housing 200 in guide opening 228. The interior surface of guide opening 228 rests on cylinder 226 and hooking mechanism 190 is slidable on cylinder 226 using guide opening 228 as guide. A spring 230 is disposed in housing 200 having one end 232 connected to housing 200 and another end 234 connected to hooking mechanism 190. Spring 230 in the rested position retains hooking mechanism 190 in the engaged position previously described. A cover 236 mounted on hooking mechanism by pins or similar means is used to cover and close hooking mechanism 190. Hooking mechanism 190 is activated to put it in the disengaging position by grasping hitch 220 and pulling against the biasing force of spring 230 to pull peg 204 away from the engaging position. Hooking mechanism 190 rides over stationary cylinder 226 over a predetermined path and for a predetermined distance dictated by guide opening 228 until hooking mechanism 190 reaches its complete disengaged position.

[0127] Referring to FIG. 4C, hooking mechanism 190 is shown in the disengaged position after hooking mechanism 190 has traveled over cylinder 226 guided by guide opening 228. Spring 230 applies a biasing force on hooking mechanism 190 pulling it to the engaged position. Once hitch 220 is released, spring 230 retracts hooking mechanism 190 to

the resting position which is the position in which hooking mechanism 190 is in the engaging position.

[0128] FIG. 4D is an enlarged perspective view of the section of hooking mechanism 192 and housing 200 defined by circle D in FIG. 4A. There is shown hooking mechanism 192 having peg 214 and being mounted on housing 200. A hitch 222 is connected to hooking mechanism 192 to use for grasping and pulling hooking mechanism 192.

[0129] Referring to FIG. 4E, there is shown an exploded view of the connection of hitch 220 to the body of hooking mechanism 190. The body has a pivot element 238 with a bore 242 therethrough. Hitch 220 includes a double clevis 244 having holes 246 and 248 therethrough. Pivot 238 is received between double clevis 244 and a pin 250 is inserted through aligned hole 246, bore 242 and hole 248 to connect hitch 220 to pivot 238.

[0130] Referring to FIG. 5A, there is shown a housing 300 which is similar to housings 200, except that it is modified to replace the sliding integral hooking mechanisms 190 and 192 with inwardly facing rotating hooking mechanisms 290 and 292, respectively. Hooking mechanism 290 has an arch shaped hook 304 and hooking mechanism 292 has an arch shaped hook 314 which is in its retracted position (not shown in FIG. 5A). Housing 300 includes receptacles 294 and 296 which are identical to receptacles 294 and 296 (shown in FIG. 4A), respectively. Receptacles 294 and 296 are configured so as to intimately receive the ends portions of hooks 304 and 314, respectively. Hooking mechanisms 290 and 292 are rotatable to place hooks 304 and 314 in engaging or disengaging positions in or away from receptacles similar to receptacles 294 and 296 in another housing.

[0131] Housing 300 includes a recessed cavity 366 which is suitable dimensioned and configured to receive the media. Cavity 366 includes a wall 370, on one end, and a wall 372, on the other end. Tandem extensions 362 and 363 extend outwardly from and vertically to wall 370 and have a lower surface on substantially the same level as the middle point of wall 370. Tandem extensions 364 and 365 extend outwardly from and vertically to wall 372 and have an upper surface on substantially the same level as the middle point of wall 372. Housing 300 includes a hole 310 on extension 363, a hole 312, a hole 314 and a hole 316 on extension 365. Holes 310, 312, 314 and 316 are positioned on a straight line and the distance between hole 310 and hole 314 is substantially equal to the distance between holes 312 and 316. That distance is about 108 millimeters. The distance between holes 310 and 316 is about 135±5 millimeters.

[0132] Hooking mechanisms 290 and 292 include internal springs (not shown in FIG. 5A) that are designed to bias and hold hooking mechanisms 290 and 292 to the engaging position, that is the position that hooks 304 and 314 are engagingly inserted in the receptacles. In FIG. 5A, hooking mechanism 290 is shown in the engaging position. Hooking mechanism 290 is activated by grasping at a hitch 320 which is disposed between extensions 362 and 363 and pulling opposite to the biasing force of the spring to displace away from housing 300 and disengage the receptacle. Once hitch 320 is released, hooking mechanism 290 returns to the engaging position because of the spring force. In FIG. 5A, hooking mechanism 292 is shown in the disengaging position after it is activated by grasping at a hitch 322 and pulling

opposite to the biasing force of the spring. Once hitch 322 is released, hooking mechanism 392 returns to the engaging position.

[0133] Referring now to FIG. 5B, there is shown an enlarged perspective, partially exploded view of the section of housing 300 and hooking mechanism 290 within circle B of FIG. 5A. Hooking mechanism 290 includes hitch 320, a driver 324 being connected to hitch 320 and having a surface with teeth 326, a first gear 328 engaging teeth 326, a second gear 332 engaging first gear 328, a third gear 336 engaging second gear and a coiled spring 340 being connected to third gear 336, on end, and to housing 300 on the other end. Hitch 320 is connected to driver 324 the same way hitch 220 is connected to the body of hooking mechanism 190 in FIG. 4E. Driver 324 has a guide opening 348 and is slidably mounted on a stationary cylinder 350 which is inserted in guide opening 348. The interior surface of guide opening 348 rests on cylinder 350 and driver 324 is slideable on cylinder 350 using guide opening 348 as guide. First gear 328, second gear 332 and third gear 336 are rotatably mounted on pins 330, 334 and 338, respectively. Hooking mechanism 290 further includes hook 304 which is integrally connected to an inner hub 342 and an arm 346. Inner hub 342 is rotatably mounted on pin 344 and its rotation around pin 344 causes the rotational movement of hook 304. Stationary cylinder 350 and pins 330, 334, 338 and 344 are integral extensions of housing 300. Arm 346 is connected to third gear 336 so that when gear 336 rotates, arm 346 is moved to cause the rotational movement of hook 304. A cover 353 mounted on hooking mechanism 290 by pins or similar means is used to cover and close hooking mechanism 290.

[0134] In its rested position, spring 340 retains third gear 336 in a position wherein hook 304 that is connected thereto via arm 346 is in the engaged position that was previously described. Hooking mechanism 290 is activated to put it in the disengaging position by pulling hitch 320 which causes driver 324 to ride over stationary cylinder 350 over a predetermined path and for a predetermined distance dictated by guide opening 348. As driver 324 slides in the pulling direction, it causes first gear 328 to move in a clockwise, second gear 332 in a counterclockwise direction and third gear 336 in a clockwise direction. As third gear 336 moves in a clockwise direction, it moves arm 346 and causes hook 304 to rotate counterclockwise and to its disengaging position. The rotation of third gear 336 causes tension on spring 340 so that the restoring force of spring 340 applies a force that biases hook 304 towards the engaged position.

[0135] Referring to FIG. 5C, hooking mechanism 290 is shown in the disengaged position after hooking mechanism 290 has been activated by pulling hitch 320. Hook 304 is in a fully retracted position. Spring 340 applies a biasing force on hook 304 via third gear 336 to return hook 304 to the engaged position. Once hitch 320 is released, spring 340 returns hook 304 to the resting position which is the position in which hooking mechanism 290 is in the engaging position.

[0136] In the embodiment depicted in FIGS. 5A-5C, hooking mechanisms 290 and 292 are housed in housing 300 and are supported therein by parts of housing 300 that are integral parts of the body of housing 300. Referring now to FIG. 6A, there is shown a housing 400 which is similar to

housing 300, except that, in housing 400, the rotating hooking mechanisms and the outermost holes that receive the binder rings are housed in and supported by an assembly which is removably attached to body 401 of housing 400. An assembly 380, shown in a position wherein it is not connected to body 401, includes an inwardly facing rotating hooking mechanism 390 comprising an arch shaped hook 404 and a hitch 420, an extension 463 having a hole 410, a housing element 403 for housing and supporting hooking mechanism 390 and a plurality of screws 467 for affixing assembly 380 to body 401. An assembly 382, shown in a position wherein it is connected to body 401, includes an inwardly facing rotating hooking mechanism 392 comprising an arch shaped hook 414 (not shown in FIG. 6A) and a hitch 422, an extension 465 having a hole 416, a housing element 405 for housing and supporting hooking mechanism 392, and a plurality of screws 469 for securely connecting assembly 382 to body 401. Extensions 463 and 465 are similar to previously described extensions 363 and 365, respectively.

[0137] Housing 400 includes receptacles 394 and 396 which are identical to receptacles 294 and 296 (shown in FIG. 5A), respectively. Receptacles 394 and 396 are configured so as to intimately receive the ends portions of hooks 404 and 414, respectively. Hooking mechanisms 390 and 392 are rotatable to place hooks 404 and 414 in engaging or disengaging positions in or away from receptacles similar to receptacles 394 and 396 in another housing, as further described herein.

[0138] Housing 400 includes a recessed cavity 466 which is suitable dimensioned and configured to receive the media Cavity 466 includes a wall 470, on one end, and a wall 472, on the other end. Extension 462 extends outwardly from and vertically to wall 470 and has a lower surface on substantially the same level as the middle point of wall 470. Extension 464 extends outwardly from and vertically to wall 472 and has an upper surface on substantially the same level as the middle point of wall 472. Housing 400 includes a hole 412 and a hole 414. In the assembled position wherein assemblies 380 and 382 are connected to body 401, holes 410, 412, 414 and 416 are positioned on a straight line and the distance between hole 410 and hole 414 is substantially equal to the distance between holes 412 and 416. That distance is about 108 millimeters. The distance between holes 410 and 416 is about 135±5 millimeters.

[0139] Hooking mechanisms 390 and 392 include internal springs (not shown in FIG. 6A) that are designed to bias and hold hooking mechanisms 390 and 392 to the engaging position, that is the position that hooks 404 and 414 are engagingly inserted in the receptacles. In FIG. 6A, hooking mechanism 390 is shown in the engaging position. Hooking mechanism 390 is activated by grasping hitch 420 and pulling opposite to the biasing force of the spring to displace away from housing 400 and disengage the receptacle. Once hitch 420 is released, hooking mechanism 390 returns to the engaging position because of the spring force. In FIG. 6A, hooking mechanism 392 is shown in the disengaging position after it is activated by grasping at hitch 422 and pulling opposite to the biasing force of the spring. Once hitch 422 is released, hooking mechanism 392 returns to the engaging position.

[0140] Referring now to FIG. 7A, there is shown a perspective, partially exploded view of assembly 380 of

**FIG. 6A.** Hooking mechanism 390 includes hitch 420, a driver 424 being connected to hitch 420 and having a surface with teeth 426, a first gear 428 engaging teeth 426, a second gear 432 engaging first gear 428, a third gear 436 engaging second gear and a coiled spring 440 being connected to third gear 436, on end, and to housing 403 on the other end. Driver 424 has a guide opening 448 and is slidably mounted on a stationary cylinder 450 which is inserted in guide opening 448. The interior surface of guide opening 448 rests on cylinder 450 and driver 424 is slideable on cylinder 450 using guide opening 448 as guide. First gear 428, second gear 432 and third gear 436 are rotatably mounted on pins 430, 434 and 438, respectively. Hooking mechanism 390 further includes hook 404 which is integrally connected to an inner hub 442 and an arm 446. Inner hub 442 is rotatably mounted on pin 444 and its rotation around pin 444 causes the rotational movement of hook 404. Stationary cylinder 450 and pins 430, 434, 438 and 444 are integral extensions of housing 403. Arm 446 is connected to third gear 436 so that when gear 436 rotates, arm 446 is moved to cause the rotational movement of hook 404. A cover 453 mounted on housing 403 by pins or screws 467 is used to cover and enclose housing 403.

[0141] In its rested position, spring 440 retains third gear 436 in a position wherein hook 404 that is connected thereto via arm 446 is in the engaged position that was previously described. Hooking mechanism 390 is activated to put it in the disengaging position by pulling hitch 420 which causes driver 424 to ride over stationary cylinder 450 over a predetermined path and for a predetermined distance dictated by guide opening 448. As driver 424 slides in the pulling direction, it causes first gear 428 to move in a clockwise, second gear 432 in a counterclockwise direction and third gear 436 in a clockwise direction. As third gear 436 moves in a clockwise direction, it moves arm 446 and causes hook 404 to rotate counterclockwise and to its disengaging position. The rotation of third gear 436 cause tension on spring 440 so that the restoring force of spring 440 applies a force that biases hook 404 towards the engaged position.

[0142] Referring to FIG. 7B, hooking mechanism 390 of FIG. 7A is shown in the disengaged position after hooking mechanism 390 has been activated by pulling hitch 420. Hook 404 is in a fully retracted position. Spring 440 applies a biasing force on hook 404 via third gear 436 to return hook 404 to the engaged position. Once hitch 420 is released, spring 440 returns hook 404 to the resting position which is the position in which hooking mechanism 390 is in the engaging position.

[0143] Referring now to FIG. 7C, there is shown the connection between extension 463 having hole 410 and housing 403. Housing 403 includes a double pivot 411a and 411b having tandem bore 413a and 413b, respectively. Extension 463 has a double clevis 415a and 415b having tandem openings 417a and 417b. A pin 419 is inserted through openings 417a, bore 413a, opening 417b and bore 413b to form a "hinge like" connection wherein extension 463 is allowed to swing.

[0144] The hard cases described may be used to store several types of media such as compact disks, floppy disks, zip disks and other media or booklets. In order to accommodate a specific medium the recessed cavity of the housing of the hard is appropriately configured to intimately receive

and retained therein the medium for storage, transportation or the like. **FIG. 8A** shows housing 60a which was previously described with a recessed cavity 66a configured to receive a compact disk 550. A retaining mechanism 552a is placed in the middle of the bottom of recessed cavity 66a to engage and retain compact disk 550. Retaining mechanism 552a is attached to the bottom of recessed cavity by inserting a connecting portion thereof in apertures 554a and 556a. Retaining mechanism 552a may be also an integral part of housing 60a. **FIG. 8B** shows compact disk 550 intimately received in recessed cavity 66a of housing 60a and retained therein by retaining mechanism 552a.

[0145] Referring now to **FIG. 8C**, there is shown housing 60a having an alternative design of a retaining mechanism 558a which is an integral part of housing 60a for receiving compact disk 550. Retaining mechanism 558a has an interior grasping section 565a formed by a ring and two perpendicular crossing walls inside the ring forming cavities for receiving the fingers of a person, a segmented ring 559a being disposed outside grasping section 565a and comprised of six ring segments and six elevation spokes 561a being outside segmented ring 559a. Grasping section 565a, segmented ring 559a and elevation spokes 561a are attached to the bottom of the recessed cavity of housing 60a. Retaining mechanism 558a is made of flexible plastic material commonly used in the construction of media retaining mechanisms employed in compact disk storage cases.

[0146] Referring now to **FIG. 8D**, there is shown an enlargement of retaining mechanism 558a having interior grasping section 565a, segmented ring 559a being disposed outside grasping section 565a and comprised of six ring segments and six elevation spokes 561a being outside segmented ring 559a. Each of the ring segments of segmented ring 559a has an outwardly projecting upper retaining flange 563a. Segmented ring 559a has a segmented outer cylindrical surface suitably sized to be intimately inserted in the central circular opening of a standard compact disk. Retaining flanges 563a are also arranged in a segmented circular configuration and, in their rested position, they extend beyond that segmented cylindrical surface. The upper surfaces of the segments of segmented ring 559a are tapered with the higher end being on the inside and the lower end being on the outside.

[0147] In order to engage the compact disk with retaining mechanism 558a, the interior opening of the compact disk is aligned with the segmented outer cylindrical surface of segmented ring 559a and is pressed down on tapered upper surface of segmented ring 559a. The pressure causes the segments of segmented ring 559a to move inwardly until the compact disk passes over flanges 563a and comes to rest on elevation spokes 561a. The restoring force causes the segments of segmented ring 559a to move outwards and flanges 563a to retainingly engage the compact disk. **FIG. 8E** shows compact disk 550 retained by retaining mechanism 558a.

[0148] **FIG. 9A** shows housing 60a with a recessed cavity 66a suitably configured to receive a floppy disk 560. Space guides 562a (not shown), 562b, 562c and 562d extend from the bottom of recessed cavity 66b and are spaced apart to provide stabilizing walls for floppy disk 560. Retaining mechanisms 564a (not shown), 564b, 564c and 564d also extending vertically from the bottom of recessed cavity 66a are spaced apart to provide stabilizing walls and retaining

hooks for floppy disk 560. FIG. 9B shows floppy disk 560 intimately received in recessed cavity 66a of housing 60a and are positioned and retained therein by space guides 562a, 562b, 562c and 562d and retaining mechanism 564a, 564b, 564c and 564d.

[0149] FIG. 9C shows housing 60a with a recessed cavity 66a suitably configured to receive a zip disk 570. Space guides 562c and 562d extend from the bottom of recessed cavity 66b and are spaced apart to provide stabilizing walls for zip disk 570. Retaining mechanisms 564a (not shown), 564b, 564c and 564d also extending vertically from the bottom of recessed cavity 66a are spaced apart to provide space guides, stabilizing walls and retaining hooks for zip disk 570.

[0150] FIG. 9D shows zip disk 570 intimately received in recessed cavity 66a of housing 60a and are positioned and retained therein by space guides 562c and 562d and retaining mechanism 564a, 564b, 564c and 564d.

[0151] FIG. 9E shows space guide 562a extending from the bottom of recessed cavity 66a of housing 60b providing a space guide for floppy disk 560. Space guide 562a includes a lower vertical wall section 567a and an upper ramp section 568a to facilitate the easier insertion of floppy disk 560 between the space guides.

[0152] FIG. 9F shows details of retaining mechanism 564a having a wall 569a extending vertically from the bottom of recessed cavity 66a of housing 60a and a hook portion 571a. Wall 569a provides a space guide and support for hook portion 571a that hooks on floppy disk 560. Retaining mechanism 564a is suitably constructed with sufficient flexibility to allow for the insertion of floppy disk 560 and sufficient spring strength to return to the resting position and snappingly engage floppy disk 560.

[0153] In one embodiment of the present invention, the housing disclosed herein is designed to have a recessed cavity on one side only to store the media. In another embodiment, the housing is designed with two recessed cavities, one on each side. Referring to FIG. 10A there is shown a cross sectional view of housing 60a taken along line 10A\_10A of FIG. 3A. There is shown recessed cavity 66a having walls 70a and 72a and extensions 62a and 64a, as previously described. FIG. 10C is an enlarged view of one end portion of housing 60a designated by circle 10C in FIG. 10A. Housing 60a has recessed cavity 66a, wall 72a and extension 64a extending outwardly from wall 72a.

[0154] FIG. 10B is a cross section of a housing 600 made in accordance with the present invention having a recessed cavity 660, on one side, and a recessed cavity 670, on the other side. Cavities 660 and 670 have a wall 700 on a one end and a wall 720, on the opposite end. An extension 620 similar to extension 62a extends outwardly and perpendicularly from wall 700. The lower surface of extension 620 extends from the middle point of wall 620. An extension 640 extends outwardly and perpendicularly from wall 720. The upper surface of extension 640 extends from the middle point of wall 620. FIG. 10D is an enlarged view of one end portion of housing 600 designated by circle 10D in FIG. 10B. Housing 600 has recessed cavities 660 and 670, wall 720 and extension 640 extending outwardly from wall 720.

[0155] As described above, the housings disclosed have either one or two recessed cavities and have case cover

mountings for attaching a case cover either on the end that has the holes for receiving the binder or on the opposite end where the receptacles are. According to the present invention, a modular, single design case cover is disclosed that can be used as cover in both single or double recessed cavity housings and can be mounted in both mounting ends of the housings without requiring modification. Referring now to FIG. 11A, a double recessed cavity housing is designed to accommodate the use of such a modular case cover.

[0156] Figure is a fragmented top view of housing 600 having hooking mechanisms 90a an 92a and receptacles 94a and 96a, as the ones shown in FIG. 3A, extensions 620 and 640 that are similar to extensions 62a and 64a (shown in FIG. 2A), a recessed cavity 660 and a recessed cavity 670 (not shown in FIG. 11A but shown in FIG. 10B). In order to better describe the invention, a straight line 601 is shown which passes through the middle point of recessed cavity 660 and is parallel to extensions 620 and 640. Line 601 and a similar line that passes through the middle point of cavity 670 are on the same plane which is generally perpendicular to housing 600. That plane is designated herein as Plane A. A line 603 is also shown which is perpendicular to line 601 and passes through the middle point of recessed cavity 660. Line 603 and a similar line that passes through the middle point of recessed cavity 670 define a plane which is perpendicular to Plane A and generally perpendicular to housing 600. That plane is referred to herein as Plane B.

[0157] Housing 600 includes case cover mountings 605, 607, 609 and 611 which are on the end that has the holes that receive the binder rings and case cover mountings 613, 615, 617 and 619 on the opposite end. Case cover mountings 619, 617, 615, and 613 are mirror images of case cover mountings 605, 607, 609, and 611, respectively with respect to Plane B. Case cover mountings 609, 611, 613, and 615 are mirror images of case cover mountings 607, 605, 619, and 617, respectively with respect to Plane A. Therefore, a description of case cover mountings 605 and 607 is sufficient to describe the remaining case mountings.

[0158] An enlargement of case cover mountings 605 and 607 is shown in FIG. 11B. Case cover mounting 605 includes an open end slot 621 in housing 600, a closed end slot 623 and a bearing 625 having an axis perpendicular to slots 621 and 623. Bearing 625 is formed by spaced apart tandem walls 627 and 629 having arched surfaces on their facing ends. FIG. 11C shows slot 623 and walls 627 and 629 of FIG. 1B. Walls 627 and 629 have ends with arched surfaces 631 and 633, respectively that form a segmented cylinder that acts as a bearing for intimately receiving a journal from a case cover (not shown). Wall 627 has tapered ends 635 and 637 on either side of curved surface 631. Further, wall 629 has tapered ends 639 and 641 on either side of curved surface 633.

[0159] Referring back to FIG. 11B, case cover mounting 607 includes an open end slot 643 in housing 600, a closed end slot 645 and a bearing 647 having an axis perpendicular to slots 643 and 645. Bearing 647 is similar to bearing 625 and is formed by spaced apart tandem walls 649 and 651 having arched surfaces 653 and 655 on their respective facing ends. Arched surfaces 653 and 655 form a segmented cylinder that acts as a bearing for intimately receiving a journal from a case cover (not shown).

[0160] Referring to FIG. 12A, case 6a has a housing 60a, as the one previously described in FIGS. 2A and 3A, and a

case cover **61a** being rotatably connected to housing **60a** via case cover mountings **63a** and **65a** which are proximate to the holes receiving the rings of the ring binder. Case cover **61a** includes a generally flat section **161a** which is sufficiently sized to cover housing **60a**. FIG. 12C is an enlargement of the connection between case cover **61a** and housing **60a** via case cover mounting **63a**. Case cover mounting **63a** is similar to case cover mounting **605** previously described. Accordingly, it includes an open end slot **71** in housing **60a**, a closed end slot **73** and a bearing **75** having an axis perpendicular to slots **71** and **73**. Bearing **75** is formed by spaced apart tandem walls **77** and **79** having arched surfaces on their facing ends. Case cover **61a** has an arm **81a** extending perpendicularly therefrom and a journal **83a** extending perpendicularly therefrom arm **81a**. Arm **81a** is received in slot **71** and journal **83a** is received and supported in bearing **75** where it is allowed to rotate.

[0161] FIG. 12E is another view of the connection between case cover **61a** and housing **60a**. Arm **81a** of case cover **61a** is received in slot **71** and journal **83a** is received and supported in bearing **75** where it is allowed to rotate. Bearing **75** is formed by spaced apart tandem walls **77** and **79** having arched surfaces **731** and **733** on their facing ends, respectively. Wall **77** has tapered ends **735** and **737** on either side of curved surface **731**. Further, wall **79** has tapered ends **739** and **741** on either side of curved surface **733**. Journal **83a** is inserted in bearing **75** by pushing journal **83a** to advance it on tapered surfaces **737** and **741** causing walls **77** and **79** to move further apart until journal **83a** snaps into place in bearing **75**. Walls **77** and **79** return to their rested position and retain journal **83a** in bearing **75**.

[0162] Referring back to FIG. 12A, case cover **61a** includes a second arm **810a** identical with arm **81a** and a journal **830a** identical with journal **83a** which engage case cover mounting **65a** like arm **81a** and journal **83a** engage case cover mounting **63a**.

[0163] Referring to FIG. 12B, case cover **61a** is connected to housing **60a** via case cover mountings **67a** and **69a** on the end that is proximate to receptacles **94a** and **96a**. FIG. 12D is an enlargement of the connection between case cover **61a** and housing **60a** via case cover mounting **67a**. Case cover mounting **67a** is similar to case cover mounting **613** previously described. Accordingly, it includes an open end slot **85** in housing **60a**, a closed end slot **87** and a bearing **89** having an axis perpendicular to slots **85** and **87**. Bearing **89** is formed by spaced apart tandem walls **91** and **93** having arched surfaces on their facing ends. Arm **81a** is received in slot **85** and journal **83a** is received and supported in bearing **89** where it is allowed to rotate. Flat section **161a** includes a crease area **189a** where cover **61a** is more flexible and readily bendable.

[0164] Referring back to FIG. 12B, second arm **810a** which is identical with arm **81a** and journal **830a** which is identical with journal **83a** engage case cover mounting **69a** like arm **81a** and journal **83a** engage case cover mounting **67a**.

[0165] FIG. 13A shows housing **600**, previously described in FIGS. 10b and 11A, having case cover mountings **605**, **607**, **609** and **611**, on the end that is connected to the binder, and case cover mountings **613**, **615**, **617** and **619**, on the opposite end. Case covers **61a** and **61b** which are identical are mounted on housing **600** to cover recessed

cavities **660** and **670** (not shown in FIG. 13A), respectively. Case cover **61a** is rotatably connected to housing **600** via case cover mountings **605** and **609**. Case cover **61b** is rotatably connected to housing **600** via case cover mountings **607** and **611**. It should be understood, that case cover **61b** is identical with case cover **61a**. Hence, case cover **61b** has arms **81b** and **810b** extending perpendicularly from section **161b** and journals **83b** and **830b** extending perpendicularly from arm **81b** and **810b**, respectively.

[0166] FIG. 13B is an enlargement of the connection between case cover **61a** and housing **600** via case cover mounting **605** and case cover **61b** via case cover mounting **607** which is the area designated by circle 13B in FIG. 13A. There is shown journal **83a** supported by arm **81a** of case cover **61a** being rotatably disposed in bearing **625** of case cover mounting **605**. Journal **830b** which is connected to case cover **61b** is rotatably disposed in bearing **647**.

[0167] Referring back to FIG. 13A, journal **830a** supported by arm **810a** of case cover **61a** is rotatably disposed in the bearing of case cover mounting **609** and journal **83b** of case cover **61b** is rotatably disposed in the bearing of case cover mounting **611**. Covers **61a** and **61b** are securely and rotatably connected to housing **600** and can be opened and closed without interfering with each other.

[0168] It should be understood that case covers **61a** and **61b** can be similarly mounted on the other end of the housing by mounting case cover **61a** on case cover mountings **613** and **617** and case cover **61b** on case cover mountings **615** and **619**.

[0169] The case covers made in accordance with the present invention may or may not include a media storage compartment to store a booklet, a compact disks, a floppy disk, a zip disk or the like. Referring to FIG. 14A, there is shown a case cover **861a** which includes a media storage compartment **866a** for storing a booklet. Case cover **866a** includes arms **81a** and **810a** extending perpendicularly from the body of case cover **866a**. Journal **83a** extends perpendicularly from arm **81a** and journal **830a** extends perpendicularly from arm **810a**. Journals **83a** and **830a** point to the same direction and their axis is on the same line. Arms **81a** and **810a** and journals **83a** and **830a** are the same in all covers and are positioned in the same location in all covers so that the same cover design (with or without a media compartment) may be used in single or double storage housings and for all case cover mounting applications previously described. Referring now to FIG. 14B there is shown an enlarged view of arm **81a** extending from the body of case cover **861a** and journal **83a** extending perpendicularly from arm **81a**.

[0170] Referring now to FIG. 14C, there is shown the relative position of journals **83a** and **830a** with respect to each other on a case **61a**, a case without media storage compartment. It should be understood, however, that the relative position is the same in all case covers regardless on whether they include media storage compartments. To further clarify the invention, a line **790** passes through the center of case cover **861a**. A line **791** is parallel to line **790** and passes adjacent to the arm supporting journal **830a**. A line **792** is parallel to line **790** and passes adjacent to the arm supporting journal **83a**. The distance between lines **790** and **791** is equal to the distance between lines **790** and **792**. Journal **830a** points towards **790** and away from line **791**.

Journal **83a** points away from lines **792** and **790**. It should be understood that the various case cover mountings previously described in connection with single or double storage housings are positioned so as to accommodate the usage of the universal case cover design with the universal arm/journal design and positioning described herein.

[0171] Referring now back to FIGS. 14A and 14B, case cover **861a** includes an outer wall **867a** which is suitably designed to conform with and be positioned in tandem with the wall on the housing when case cover **861a** is closed. Further, case cover **861a** includes a raised wall **868a** which is interiorly of and abutting wall **867a**. Wall **868a** is so configured so as to be intimately inserted inside the wall of the housing when case cover **861a** is closed to seal the recessed cavity of the housing and to protect the stored media. In the case of case covers that do not have a media storage compartment, wall **867a** is not present. Still referring to FIG. 14A, case cover **861a** includes extensions **870a**, **871a**, **872a** and **873a** to engage and retain the booklet in the booklet storage compartment. Case cover **861a** includes locking mechanisms **874a** and **875a** that engage corresponding mechanisms in the housing to lockingly engage the housing with case cover **861a**.

[0172] Referring now to FIG. 14G, there is shown and enlargement of locking mechanism **874a**. There is shown case cover **866a** with walls **867a** and **868a**. A groove **893a** in wall **868a** is configured to intimately receive and engage a projection in the housing such as projection **169a** or **165a** (shown in FIG. 2A).

[0173] FIG. 14D shows a case cover **862a** configured to receive a compact disk **550**. A retaining mechanism **552a** as the one described in FIG. 8A retains compact disk **550** therein.

[0174] FIG. 14E shows a case cover **863a** with a storage compartment suitably configured to receive a floppy disk **560**. Floppy disk **560** is intimately received in case cover **863a** and is positioned and retained therein by space guides **562a**, **562b**, **562c** and **562d** and retaining mechanisms **564a**, **564b**, **564c** and **564d** similar to the ones described in FIG. 9B.

[0175] FIG. 14F shows a case cover **864a** with a storage compartment suitably configured to receive a zip disk **570**. Zip disk **570** is intimately received in case cover **864a** and is positioned and retained therein by space guides **562c** and **562d** and retaining mechanisms **564a**, **564b**, **564c** and **564d** similar to the ones previously described in FIG. 9D.

[0176] FIGS. 15A and 15C show retaining mechanism **552a** having an elevation ring **802**, two symmetrical release segments **808**, two symmetrical release segments **818**, two symmetrical guide ring segments **826**, two symmetrical guide ring segments **828** and two symmetrical connecting members **830**. Retaining mechanism **552a** is an integral piece made of flexible plastic material commonly used in the construction of media retaining mechanisms employed in compact disk storage cases. Elevation ring **802** has an exterior conical surface with a lower exterior diameter **804** being larger than an upper exterior diameter **806**. Release segment **808** has a wall **810** connected to elevation ring **802**, an outwardly projecting retaining flange **814** and a generally flat activation member **812**. Release segment **818** has a wall **820** connected to elevation ring **802**, an outwardly project-

ing retaining flange **824** and a generally flat activation member **822**. Guide ring segment **826** is connected to elevation ring **802** between release segments **808** and **818**. Guide ring segment **828** is connected to elevation ring **802**. Connecting member **830** extends from interiorly from guide ring segment **828**. Walls **810** and **820** and guide ring segments **826** and **828** have exterior curved surfaces that are arranged and connected to elevation ring **802** in a circular configuration so as to form a segmented outer cylindrical surface having a diameter substantially equal to upper diameter **806** of elevation ring **802** and suitably sized to be intimately inserted in the central circular opening of a standard compact disk (shown in FIG. 8B). Retaining flanges **814** and **824** are also arranged in a segmented circular configuration and, in their rested position, they extend beyond the exterior surfaces of walls **810** and **820** and guide ring segments **826** and **828**.

[0177] Referring now to FIG. 15B there is shown a cross sectional view of retaining mechanism **552a** taken along lines A and B of FIG. 15A. There is shown retaining mechanism **552a** having elevation ring **802** with lower exterior diameter **804** and smaller upper exterior diameter **806**. Activation member **822** of release segment **818** is connected to elevation ring **802** via wall **820** over a relief cavity **838**. Retaining flange **824** extends beyond the exterior surface of wall **820**. Activation member **812** of release segment **808** also extends over relief cavity **838**. Guide ring segment **828** is connected to elevation ring **802** and connecting member **830** extends from guide ring segment **828** inwardly. A retaining pin **832** extends downwards from connecting member **830** and is one of the two pins (the other being an identical pin extending from the other connecting member **830**) that are used to securely connect retaining mechanism **552a** to apertures **554a** and **556a** (shown in FIG. 8A).

[0178] FIG. 15D shows retaining pin **832** extending from connecting member **830**. Retaining pin **832** is a segmented pin with an enlarged head having four identical resilient segments **834** with relief slots **836** there between. Segments **834** are biased towards each other to reduce the enlarged head so that it can be inserted in aperture **554a** or **556a**. Once it is inserted in the aperture, the biasing force is discontinued and the enlarged head returns to its resting position to securely retain retaining pin **832** and securely connect retaining mechanism **552a** to housing **60a** (shown in FIG. 8B). A retaining mechanism is connected likewise to a cover when a cover is used to store a compact disk.

[0179] Referring now to FIGS. 15A through 15C, a compact disk is attached by simultaneously pressing release segments **808** and **818** to retract retaining flanges **814** and **814**, passing the interior hole of the compact disk over the retracted flanges **812** and **814** and allowing the compact disk to be intimately received over the segmented exterior cylindrical surface formed by walls **810** and **820** and guide ring segments **826** and **828**. The compact disk comes to rest on the upper portion of elevation ring **802** whereby it does not touch the bottom of the housing to avoid scratching or other damage that can be caused by such contact. When the pressing on release segments **808** and **818** is discontinued, the resilient release segments **808** and **818** return to the resting position thereby returning the retaining flanges **814** and **814** to their resting position to retain the compact disk in the housing. The compact disk is released by similarly

pressing the resilient release segments **808** and **818** to retract the retaining flanges **814** and **824** and pass the compact disk over the retracted flanges.

[0180] Another compact disk retaining mechanism **850** is shown in FIGS. 16A and 16C. Retaining mechanism **850** includes an elevation ring **851**, a main body **852** comprising branches **854**, **856** and **858** and connecting members **853** and **855**, and curved fingers **868**, **870**, **872**, **874**, **876** and **878**. The end portions of branches **854**, **856** and **858** are attached to elevation ring **851** and have outer arc ends **860**, **862** and **864**, respectively, that form a segmented outer cylindrical surface suitably sized to intimately receive a compact disk over it. Elevation ring **851** has an exterior conical surface with a lower exterior diameter **881** being larger than an upper exterior diameter **883**. Upper exterior diameter **883** is substantially equal to the diameter of outer arc ends **860**, **862** and **864**.

[0181] Curved fingers **868** and **870** extend circumferentially in opposite directions from the end portion of branch **854** with the exterior surfaces of curved fingers **868** and **870** transitioning smoothly from outer arc end **860** at the points of connection and gradually advancing beyond the imaginary circumference of the segmented cylinder formed by arc ends **860**, **862** and **864**. A retaining flange **869** extends from curved finger **868** with the extension span of retaining flange **869** gradually and smoothly increasing from nil to its maximum as one advances from the point of connection of curved finger **868** and outer arc end **860** to the free end of curved finger **868**. Similar retaining flanges **871**, **873**, **875**, **877** and **879** with similarly increasing spans extend from curved fingers **870**, **872**, **874**, **876** and **878**, respectively. The upper surfaces of fingers **868**, **870**, **872**, **874**, **876** and **878** are tapered with the higher end being on the inside and the lower end being on the outside.

[0182] Each one of connecting members **853** and **855** includes retaining pin **832** like the one previously described in connection with retaining mechanism **552a** in FIG. 15D. Retaining pins **832** securely connects retaining mechanism **850** to housing **60a** (shown in FIG. 8B). A retaining mechanism is connected likewise to a cover when a cover is used to store a compact disk.

[0183] Referring now to FIG. 16D, there is shown a cross sectional view of retaining mechanism **850** taken along line 16D-16D of FIG. 16A. There is shown elevation ring **851** with lower diameter **881** and upper diameter **883**, branch **858** of body **852** having an outer arc end **864**, connecting members **853** and **855** with retaining pins **832**, and finger **870** having retaining flange **871**.

[0184] Referring now to FIG. 16D, there is shown an enlargement of the section of FIG. 16B encircled by circle 16D. There is shown finger **870** having an exterior surface extending beyond the surface defined by upper diameter **883** of elevation ring **851** and a retaining flange **871** extending from finger **870**. Upper outer facing surface **885** of flange **871** is curved. Referring now to FIG. 16E, there is shown an enlargement of section of FIG. 16C enclosed by circle 16E showing finger **874** having retaining flange **875**.

[0185] In order to engage the compact disk with retaining mechanism **850**, the interior opening of the compact disk is aligned with the segmented outer cylindrical surface formed by outer arc ends **860**, **862** and **864** and is pressed down on

curved fingers **868**, **870**, **872**, **874**, **876** and **878**. The pressure causes curved fingers **868**, **870**, **872**, **874**, **876** and **878** with the upper tapered ends to move inwardly until the compact disk passes over flanges **869**, **871**, **873**, **875**, **877** and **879** and comes to rest on elevation ring **851**. The restoring force causes resilient curved fingers **868**, **870**, **872**, **874**, **876** and **878** to move outwards and flanges **869**, **871**, **873**, **875**, **877** and **879** to retainingly engage the compact disk.

[0186] Referring to FIG. 17A, there is shown soft case **18a** which is also shown in FIG. 1A as part of array **18**. Soft case **18a** is made by bonding together plastic sheets of well known material suitable material for the construction of soft cases. Soft case **18a** includes a pocket **900a** formed between base sheet **901a** and front sheet **902a** to receive and house compact disk **550**. A generally triangularly shaped flap **906a** (shown in a partially opened position) with its fixed end attached adjacent to end **907a** is configured so as to allow the insertion of the compact disk, in the open position, and to close the open end of pocket **900a**, in the closed position, to protect the enclosed compact disk from dust, scratching and the like as well as from sliding out of the pockets. A small pocket **908a** adjacent to end **907a** formed by base sheet **901a** and a narrow front strip receives a small portion **909a** of compact disk **550** and serves as a stop and stabilizing element for compact disk **550**.

[0187] An extension **910a** extends outwardly on one side of soft case **18a** and an extension **920a** which is a mirror image of extension **910a** extends outwardly on the other side of soft case **18a**. Extension **910a** includes an elongate pouch **911a** for housing an elongate flat strip **912a** having two flat sides, one magnetic or one non magnetic. Strip **912a** is inserted in or removed from pouch **911a** through aperture **913a**. Strip **912a** can be one piece having one magnetic and one non magnetic section connected together or two separate flat strips, one magnetic and one non magnetic. Pouch **911a** has an elongate opening **915a** over a portion of strip **912a** to allow the direct contact of the strip with another strip. Extension **910a** further includes hole **26a**. Extension **920a**, being a mirror image of extension **910a** includes an elongate pouch **921a** for housing an elongate flat strip **922a** having two flat sides, one magnetic and one non magnetic. Strip **922a** can be inserted in or removed from pouch **921a** through aperture **923a**. Pouch **921a** has an elongate opening **925a** over a portion of strip **922a** to allow the direct contact of the strip with another strip. Extension **920a** further includes hole **20a**.

[0188] Soft case **18a** includes bonded sections **914a** and **924a**. Hole **24a** is disposed in bonded section **914a** and hole **22a** is disposed in bonded section **924a**. Holes **20a**, **22a**, **24a** and **26a** are positioned on a straight line and the distance between hole **20a** and hole **24a** is substantially equal to the distance between holes **22a** and **26a**. That distance is about 108 millimeters. The distance between holes **20a** and **26a** is about 135±5 millimeters.

[0189] Soft case **18a** further includes straps **930a**, **932a**, **934a** and **936a** which are used to connect soft cases like soft case **18a** together. Strap **930a** is a generally flat member having a semicircular exterior end portion **938a**, a semicircular cut **940a** forming a semicircular interior portion **942a** and a rectangular aperture **944a** between cut **940a** and hole **26a**.

[0190] Strap **936a** is a mirror image of strap **930a** and strap **934a** is a mirror image of strap **932a** with respect to a

plane which is perpendicular to extension 910a. Strap 932a is a mirror image of strap 930a and strap 934a is a mirror image of strap 936a with respect to a plane which is perpendicular to the plane of case 18a and parallel with extensions 910a and 920a. Accordingly, strap 932a includes a semicircular exterior end portion 917a, a semicircular cut 919a forming a semicircular interior portion 927a and a rectangular aperture 945a. Strap 934a includes a semicircular exterior end portion 933a, a semicircular cut 935a forming a semicircular interior portion 937a and a rectangular aperture 929a. Strap 936a includes a semicircular exterior end portion 948a, a semicircular cut 950a forming a semicircular interior portion 952a and a rectangular aperture 954a. The sheets used to form soft case 18a are bonded in bonded sections 914a and 924a, straps 930a, 932a, 934a and 936a, end 907a and on extensions 910a and 920a, interiorly and exteriorly of pouches 911a and 921a.

[0191] Referring now to FIG. 17B, there is shown a soft case 19a which is similar to soft case 18a except for the fact that its pocket is increased by removing bonded sections 914a and 924a and holes 22a and 24a. Booklets or the like can be stored in the increased size pocket. Soft case 19a is used only in connection with binders that have rings that are spaced at a distance of  $135\pm 5$  millimeters.

[0192] Soft case 18a may be constructed with one pocket or with two pockets, one on the front and one on the back. Referring now to FIG. 18A, there is shown a cross sectional view of soft case 18a having one pocket taken along line 18-18 of FIG. 17A. Soft case 18a has pocket 900a formed between front sheet 901a and base sheet 902a to receive and house compact disk 550. Extension 910a extends outwardly on one side of soft case 18a and extension 920a which is a mirror image of extension 910a extends outwardly on the other side of soft case 18a. Extension 910a includes pouch 911a for housing strip 912a which includes a magnetic and a non magnetic portion. Extension 920a includes pouch 921a for housing flat strip 922a which includes a magnetic and a non magnetic portion. The sheets forming soft case 18a are bonded on extensions 910a and 920a, interiorly and exteriorly of pouches 911a and 921a, at 953a, 955a, 965a and 963a.

[0193] FIG. 18C is an enlargement of the section of soft case 18a encircled in FIG. 18A by circle 18C. There is shown soft case 18a with pocket 900a formed between base sheet 901a and front sheet 902a housing compact disk 550. Extension 920a includes pouch 921a housing flat strip 922a and having opening 925a over it. Strip 922a includes an upper portion 959a and a lower portion 961a. Depending on whether the configuration is western or eastern, one of portions 959a and 961a is magnetic and the other non magnetic. The sheets forming soft case 18a are bonded at 965a and 963a.

[0194] Referring now to FIG. 18B, there is shown a cross sectional view of a soft case 218a having two pockets. Soft case 218a is similar to soft case 18a except that soft case 218a has two pockets. Soft case 218a has pocket 900a formed between front sheet 901a and base sheet 902a and a pocket 990a formed between base sheet 902a and back sheet 931a housing compact disks 550. Extension 930a extends outwardly from the middle section of one side of soft case 218a and extension 940a which is a mirror image of extension 930a extends outwardly on the other side of soft

case 218a. Extension 930a includes pouch 911a for housing magnetic or non magnetic strip 912a and a pouch 941a for housing a magnetic or non magnetic strip 942a. Extension 940a includes pouch 921a for housing flat magnetic or non magnetic strip 922a and a pouch 951a for housing a magnetic or non magnetic strip 952a. The sheets forming soft case 218a are bonded on extensions 930a and 940a at 973a, 975a, 985a and 983a.

[0195] FIG. 18D is an enlargement of the section of soft case 218a encircled in FIG. 18B by circle 18D. There is shown soft case 218a with pockets 900a and 990a formed between base sheet 902a and front sheet 901a and base sheet 902a and back sheet 931a housing compact disks 550. Extension 940a includes pouch 921a for housing flat magnetic or non magnetic strip 922a and having opening 925a over it, and a pouch 951a for housing a magnetic or non magnetic strip 952a and having an opening 955a over it. The sheets forming soft case 218a are bonded at 985a and 983a.

[0196] Referring now to FIG. 19A there are shown soft cases 18a and 18d connected to form half of array 18 shown in FIG. 1A. As previously described, soft case 18a has straps 930a, 932a, 934a and 936a which are used to connect soft cases like soft case 18a together. Soft case 18d is identical to soft case 18a and the corresponding parts thereof are designated by the same numbers as the ones used for soft case 18a followed by the letter "d" substituting for the letter "a." Accordingly, soft case 18d has straps 930d, 932d, 934d and 936d which are used to connect it to another soft case. Soft case 18d is connected to soft case 18a by engaging strap 936a with strap 930d and strap 934a with strap 932d.

[0197] Referring now to FIG. 19B, there is shown an enlarged view of the engagement between straps 934a and 932d in the area contained within circle 19B. Strap 934a extending from soft case 18a engages strap 932d extending from case 18d by inserting semicircular exterior portion 933a and semicircular interior portion 937a of strap 934a through a rectangular aperture 945d and expanding portions 933a and 937a to securely engage soft case 18d. Similarly, strap 932d engages strap 934a by inserting semicircular exterior portion 917d and semicircular interior portion 927d of strap 932d through a rectangular aperture 929a and expanding portions 917d and 927a to securely engage soft case 18a.

[0198] Referring back to FIG. 19A, unused straps 930a, 932a, 934d and 936d are folded inwards to a secure position. Referring to FIG. 19C, there is shown an enlarged view of the folding of strap 930a of soft case 18a. Strap 930a is folded downwardly and rearwardly at 941a, exterior semicircular portion 938a and interior semicircular portion 942a are inserted in rectangular aperture 944a and are allowed to expand to securely remain in the folded position.

[0199] Referring now to FIG. 20A, there are shown four identical soft cases 18a, 18b, 18c and 18d being connected to form array 18 of FIG. 1A for mounting to a binder. The corresponding parts of each of those identical soft cases are designated by the same numbers followed by the letter corresponding to the specific case. For example, in soft case 18b, the extension which is identical with extension 910a of soft case 18a is 910b. Accordingly, like soft case 18a that has extensions 910a and 920a, previously described, soft cases 18b, 18c and 18d have extensions 910b and 920bs extensions 910c and 920c, and extensions 910d and 920d.

[0200] Soft cases 18a and 18d are connected to each other, as previously described in connection with FIGS. 19A, 19B and 19C. Further, soft cases 18b and 18c are connected to each other in a similar fashion by using corresponding straps. Still referring to FIG. 20A, identical housings 18a and 18b are aligned for connection to binder 32 (not shown in FIG. 20A but shown in FIG. 1B) by superimposing extension 910a over extension 920b and hole 26a over hole 20b. Strip 912a in extensions 910a has a lower magnetic section and an upper non magnetic section. Strip 922b in extension 920b has an upper magnetic section and a lower non magnetic section. The magnetic sections of strips 912a and 922b cause extensions 910a and 920b to stick together. Similarly, identical housings 18d and 18c are aligned for connection by superimposing extension 910d over extension 920c with strips having magnetic and non magnetic sections being disposed therein to strengthen the engagement there between. In that position, holes 26b, 24b, 22b, 20b, 26a, 24a, 22a and 20a are positioned in a straight line for connection to binder 2, as the one shown in FIG. 1A or binder 32, as the one shown in FIG. 1B.

[0201] Still referring to FIG. 20A, when soft cases 18a, 18b, 18c and 18d are connected as shown and inserted into binder 2 (shown in FIG. 1A), the turning of soft case 18b from right to left (western style) causes extension 920b to lift extension 910a thereby turning soft case 18a at the same time. Similarly the turning of soft case 18c causes soft case 18d to turn also.

[0202] If the arrangement of the extensions shown in FIG. 20A is changed by superimposing extension 920b over extension 910a and extension 920c over extension 910d, the turning of the soft cases previously described will be changed from left to right.

[0203] Referring now to FIG. 20B, there is shown the connection between double pocket soft cases 218a and 218b, if the single pocket soft cases of FIG. 20A are replaced with double pocket soft cases. Soft case 218a was described in FIG. 18B and soft case 218b is identical with soft case 218a. There is shown extension 930a of soft case 218a being superimposed over extension 940b of soft case 218b. Extension 930a has a nonmagnetic strip 912a on top and a magnetic strip 942a at the bottom. Extension 940b has a magnetic strip 922b on top and a non magnetic strip 952b, at the bottom. That arrangement facilitates the western style turning from right to left. To effect a reverse turning style, i.e. eastern style turning from left to right the superimposition of extensions 930a and 940b is reversed by superimposing extension 940b over extension 930a, as shown in FIG. 20C. Extension 940b has nonmagnetic strip 922b on top and magnetic strip 952b at the bottom. Extension 930a has magnetic strip 912a on top and nonmagnetic strip 942a, at the bottom.

[0204] Referring now to FIG. 21A, a page soft case 36u made in accordance with the present invention for storing media is an integral flat piece constructed by bonding together plastic sheets. The sheets are made of well known soft plastic material commonly used for the construction of soft media cases. Page soft case 36u has holes 38, 40, 42, 44 and 46, in sequence, advancing from one side to the other. The distance between holes 38 and 42 is equal to the distance between holes 42 and 46 and it is about 135±5 millimeters. The distance between holes 40 and 42 is equal

to the distance between holes 42 and 44 and it is about 108 millimeters. Page soft case 36u can be pivotally connected to a binder like binder 2 by receiving the rings in holes 40, 42 and 44 or to a binder like binder 32 by receiving the rings in holes 38, 42 and 46.

[0205] Case 36u includes, on one side, four pockets 48, 50, 52 and 54, in a two by two array configuration, each pocket being suitable for receiving a medium. Each pocket is formed between base sheet 37 and front sheet 39 to receive and house compact disk 550 inserted therein through open ends. The closed end of pocket 48 includes a bonded section 21 wherein hole 40 is disposed and a bonded section 23. The closed end of pocket 50 includes a bonded section 27 and a bonded section 29 wherein hole 44 is disposed. The open ends of pockets 48 and 50 are on the portion of the pocket which is distant to the side that is mountable to the binder. The open ends of pockets 54 and 52 face towards the top end of page soft case 36u.

[0206] The open ends of pockets 48, 50, 52 and 54 are covered by generally triangularly shaped flaps 56a, 56b, 56c and 56d (shown in a partially opened position), respectively, whose fixed ends are connected to the end of the respective pocket and are configured so as to allow the insertion of the media, in the open position, and to cover the open ends of those pockets, in the closed position, to protect the enclosed media from dust, scratching and the like as well as from sliding out of the pockets. Although flaps 56a, 56, 56c and 56d are connected to the ends of their respective pockets, they are not creased at those ends, but at a point which is a short distance interiorly of those ends to form small pockets 58a, 58b, 58c and 58d, respectively, that serve as a stop and stabilizing element for compact disk 550. Pockets 52 and 54 are square and have a larger capacity than pockets 48 and 50 whose capacity is reduced by the bonded sections 21 and 23, and 27 and 29. Accordingly, one may store in pockets 52 and 54 booklets which sometimes accompany compact disks. Page soft case 36u further includes a title strip 59a, at the top end of pocket 48, a title strip 59b, at the top end of pocket 54, a title strip 59c, at the bottom end of pocket 52, a title strip 59d, at the bottom of pocket 50, and a title strip 59e between pockets 48 and 50. Each title strip is a narrow elongate pouch formed by the top and bottom sheets and has small openings for inserting the written title material.

[0207] In an alternative embodiment, similar pockets can be placed on the rear end of page soft case 36u in an arrangement which mirrors the arrangement set forth above to form a two sided page soft case having eight pockets.

[0208] In an alternative construction of page soft case 36u, bonded sections 21, 23, 27 and 29 and holes 40 and 44 of page soft case 36u are eliminated to increase the capacity of pockets 48 and 50. That alternative construction is shown as page soft case 36 in FIG. 21B wherein pockets 48 and 50 of page soft case 36u are replaced by pockets 49 and 51, respectively. The three remaining holes 38, 42 and 46 are used to receive rings 34a, 34b and 34c of binder 32, as shown in FIG. 1B.

[0209] Referring now to FIG. 22A, there is shown page soft case 360 which is page soft case 36u of FIG. 21A with straps 367, 369, 371, 373 and 375 attached thereto. Those straps are similar to straps 930a, 932a, 934a and 936a which were described in FIG. 17A and are used to connect page soft case 360 with page soft cases having similar straps in a

manner similar to the one described before. **FIG. 22B** shows a page soft case **650** which is case **36** of **FIG. 21B** with straps **367, 369, 371, 373** and **375** attached thereto to connect case **650** with other cases having similar straps.

[0210] While preferred embodiments of the invention have been shown and described, modifications thereof can be made by one skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A case for holding media, comprising:  
a housing for housing the media; and  
means for removably connecting the housing to another case for holding media.

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