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(54) **SYSTEM FOR FRONTAL DISPLAY OF  
OBJECTS**

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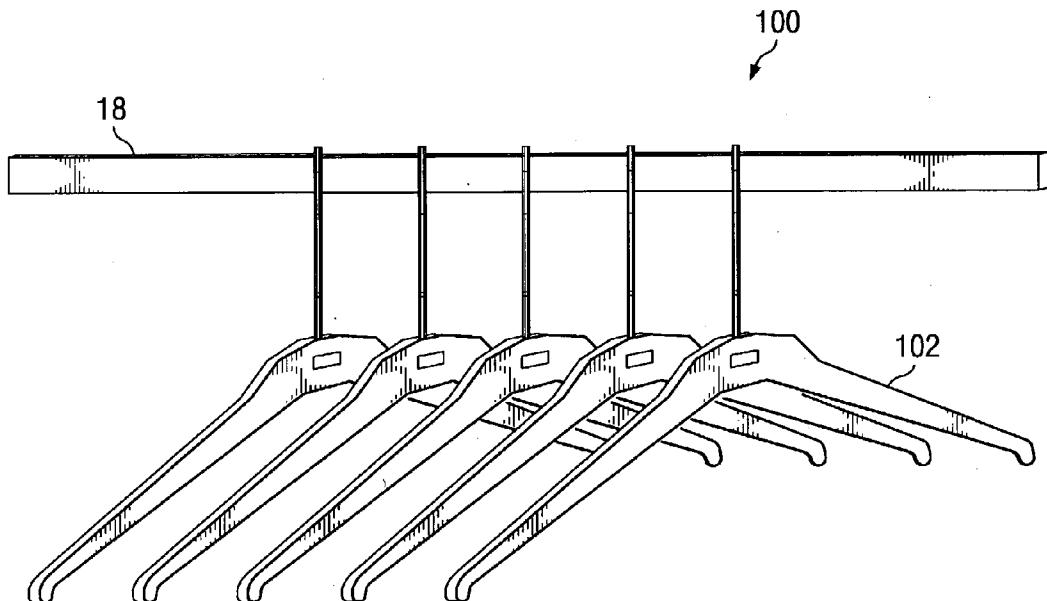
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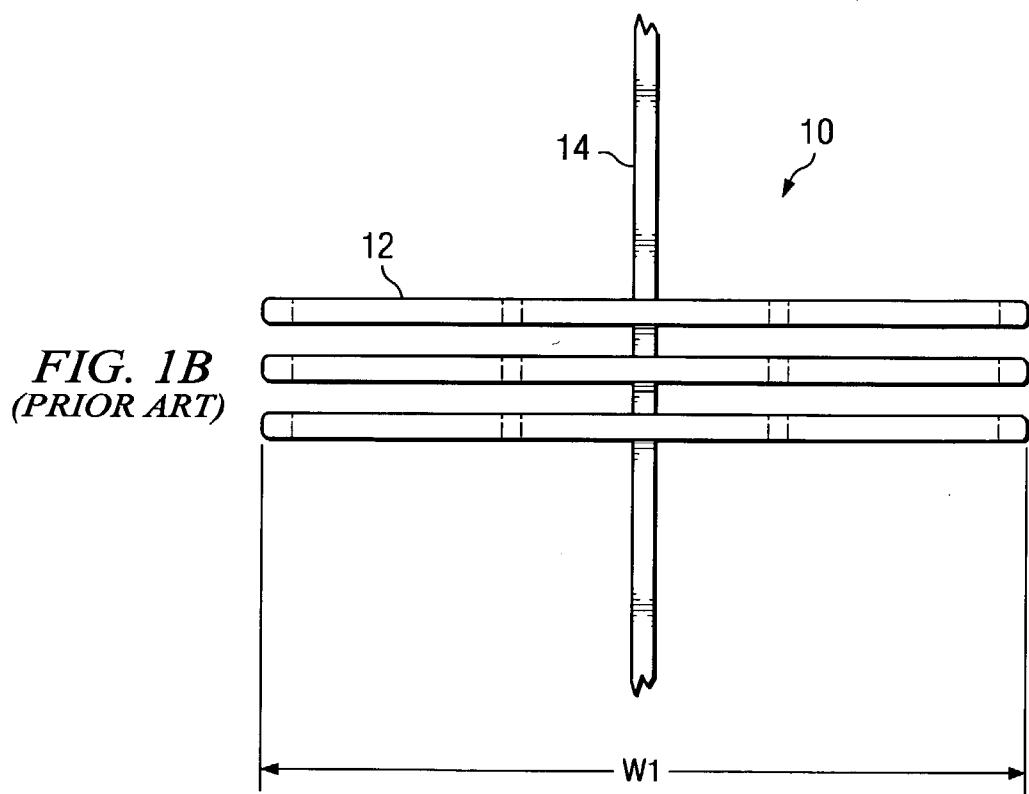
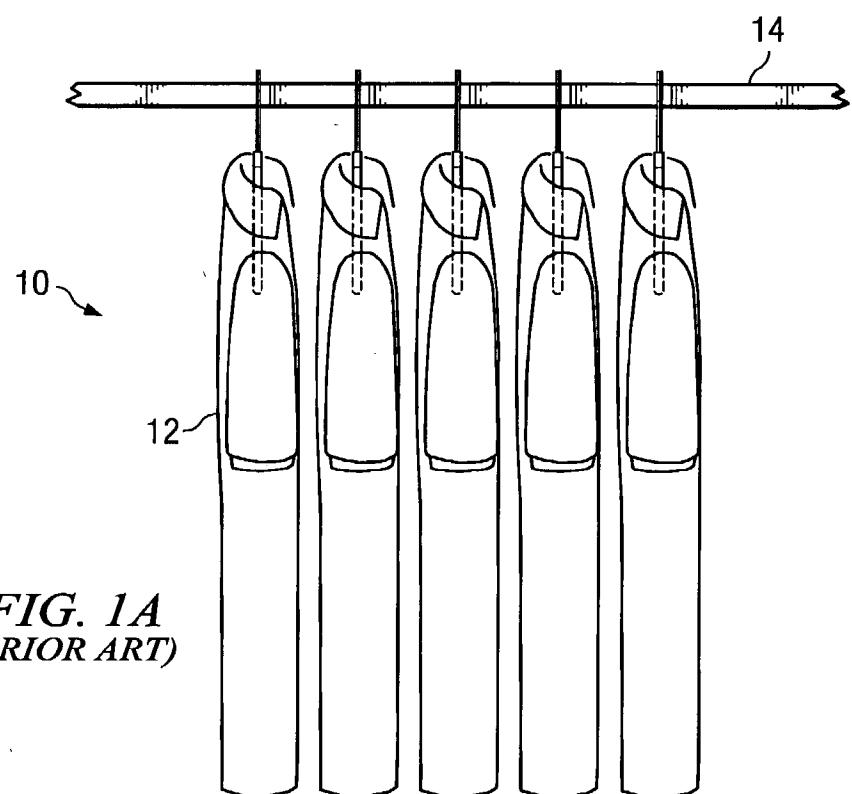
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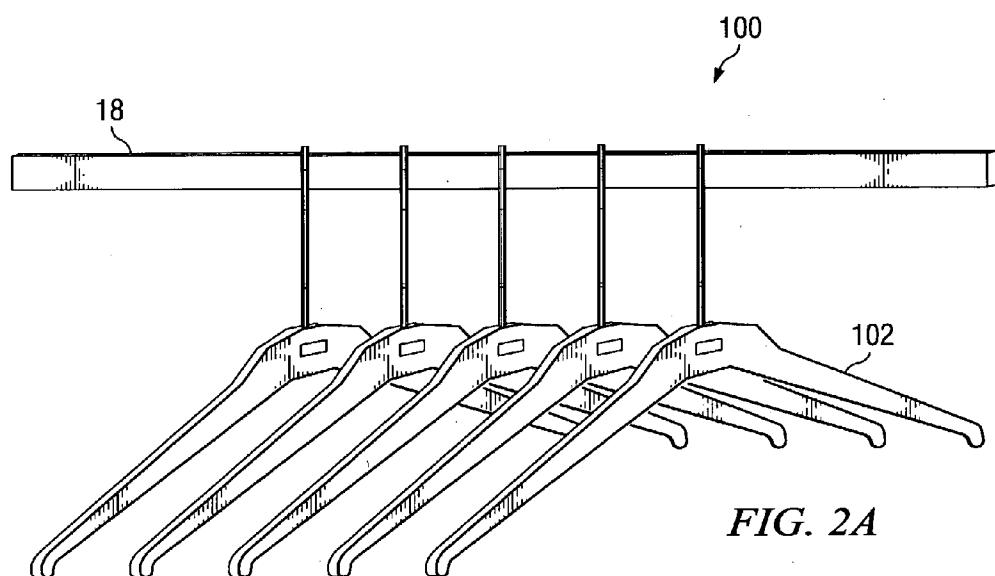
(22) Filed: **Apr. 16, 2003**

(57) **ABSTRACT**

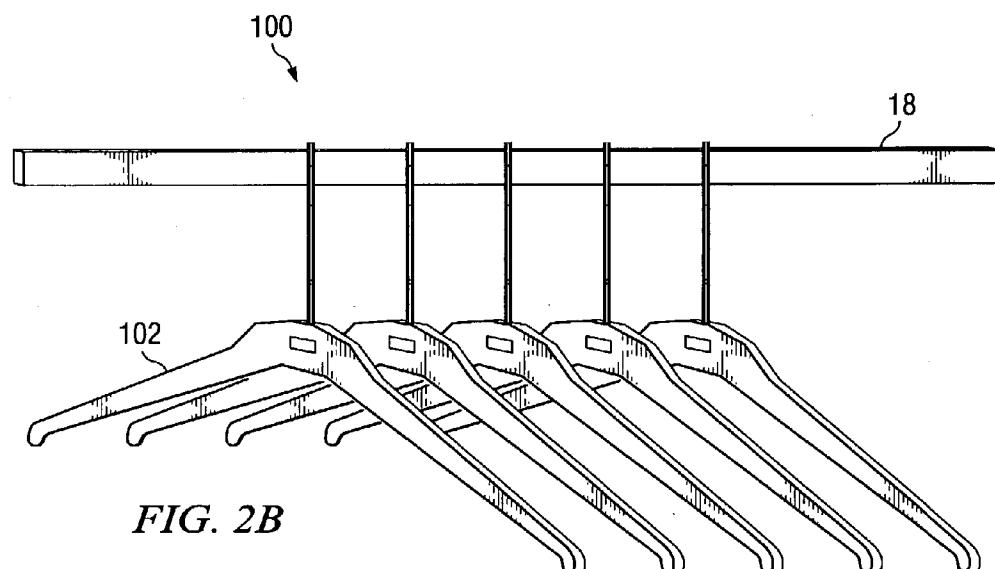
In accordance with an embodiment of the present invention, a hanger comprises a main body disposed in a first plane and a hook coupled to the main body such that the main body and the hook maintain a non-coplanar relationship.



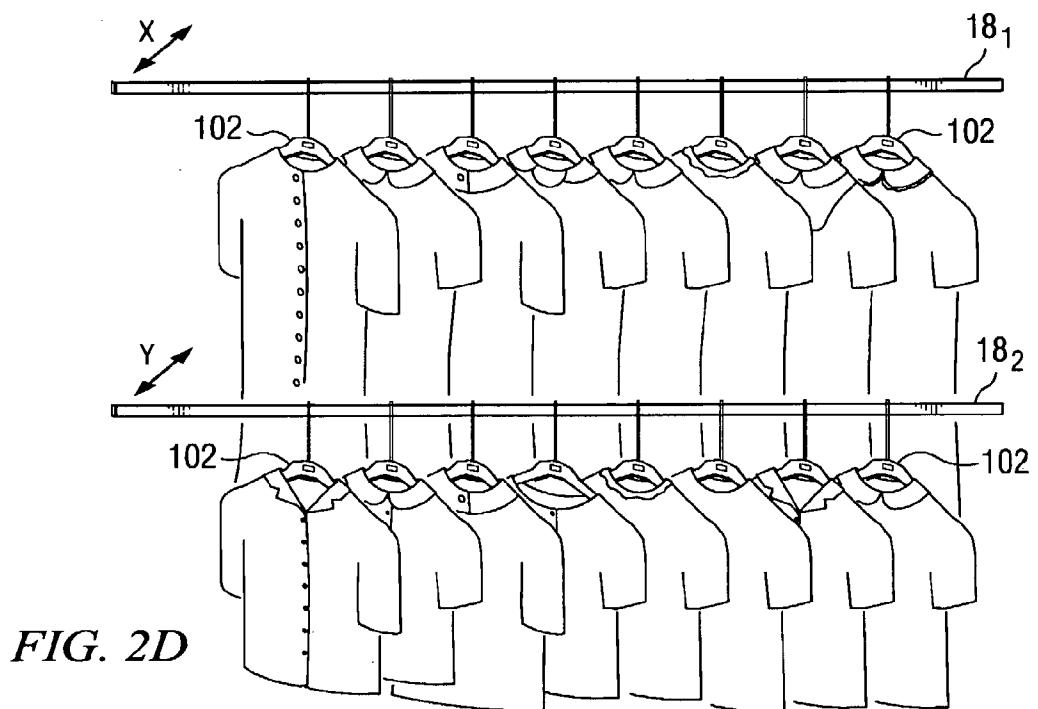
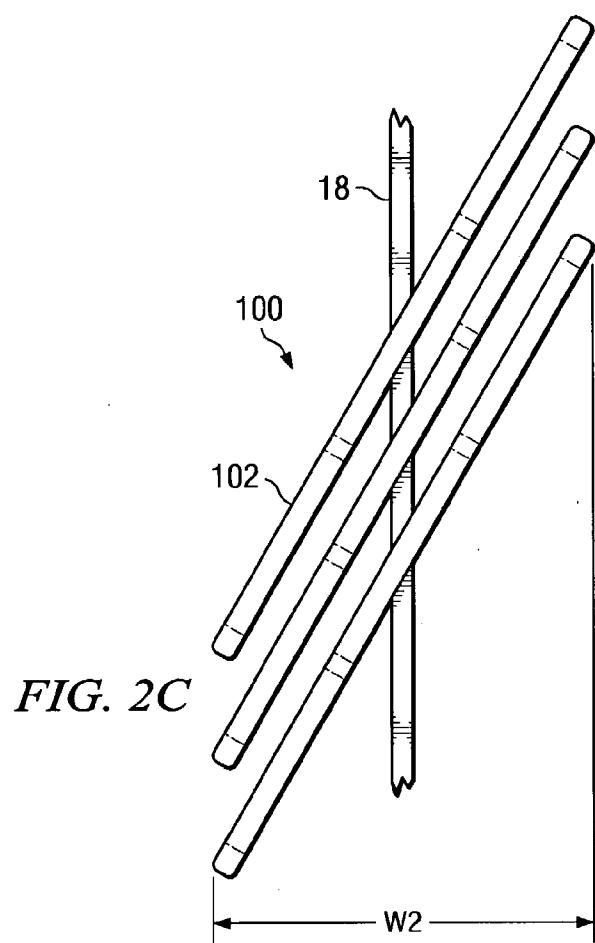


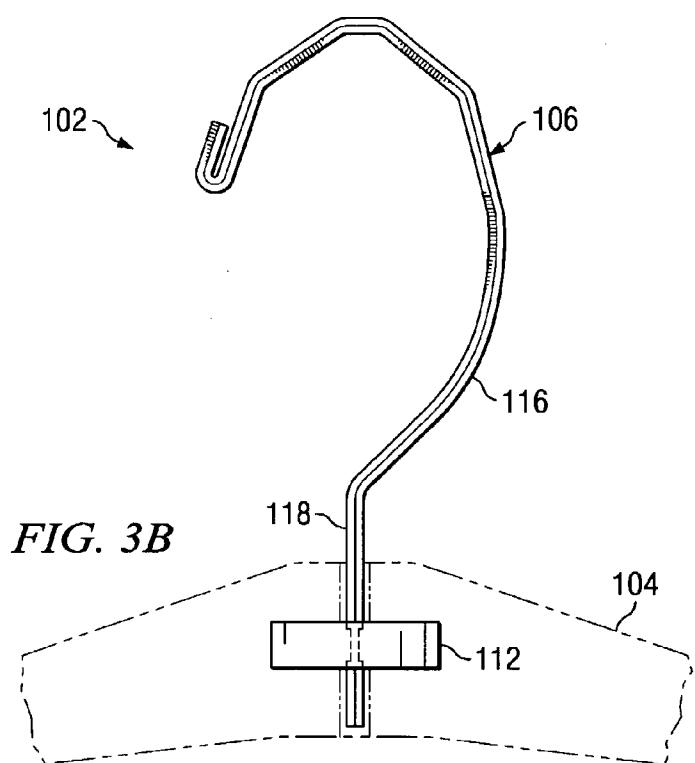
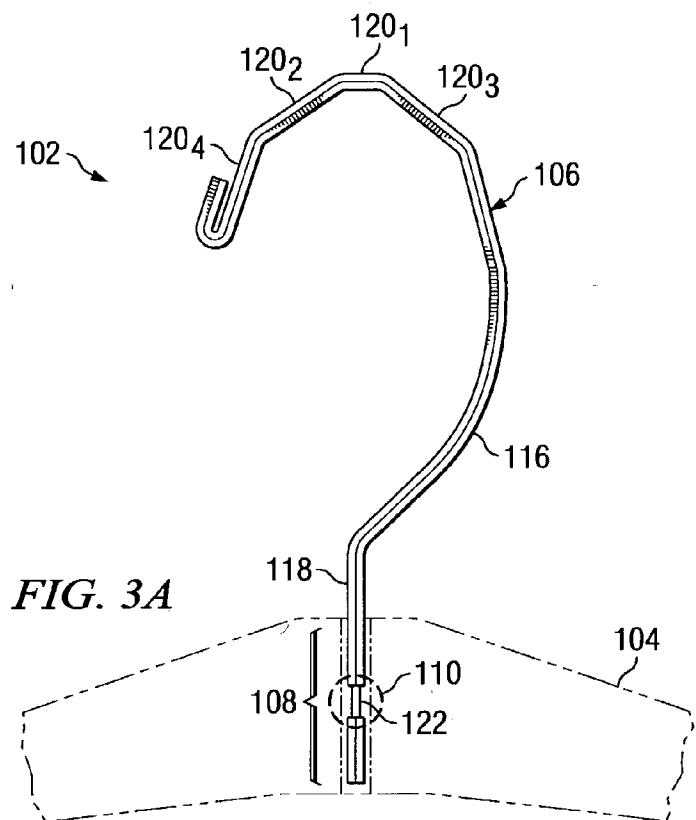


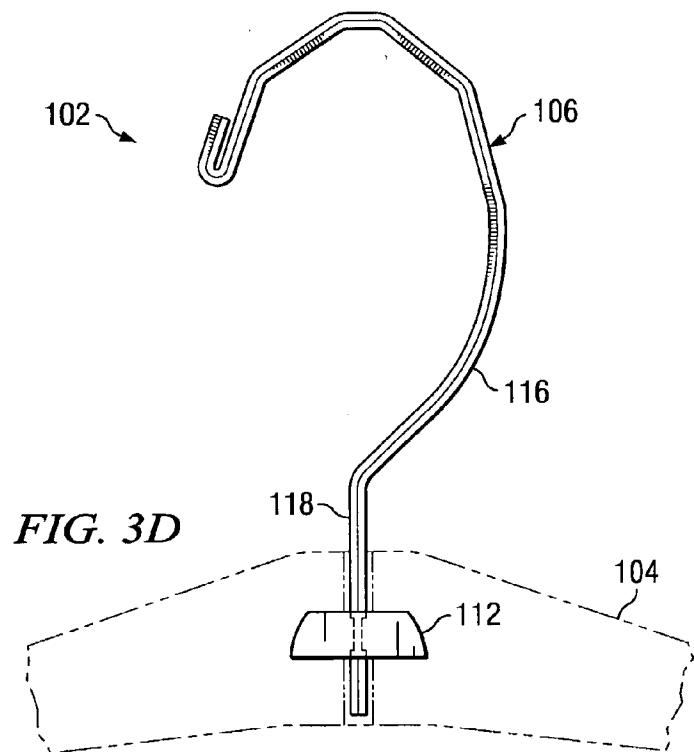
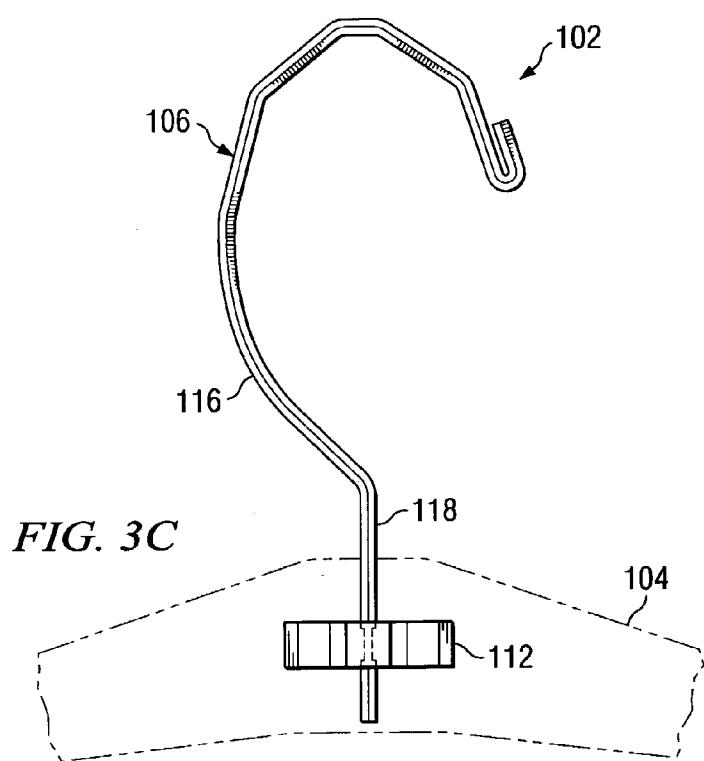
*FIG. 2A*

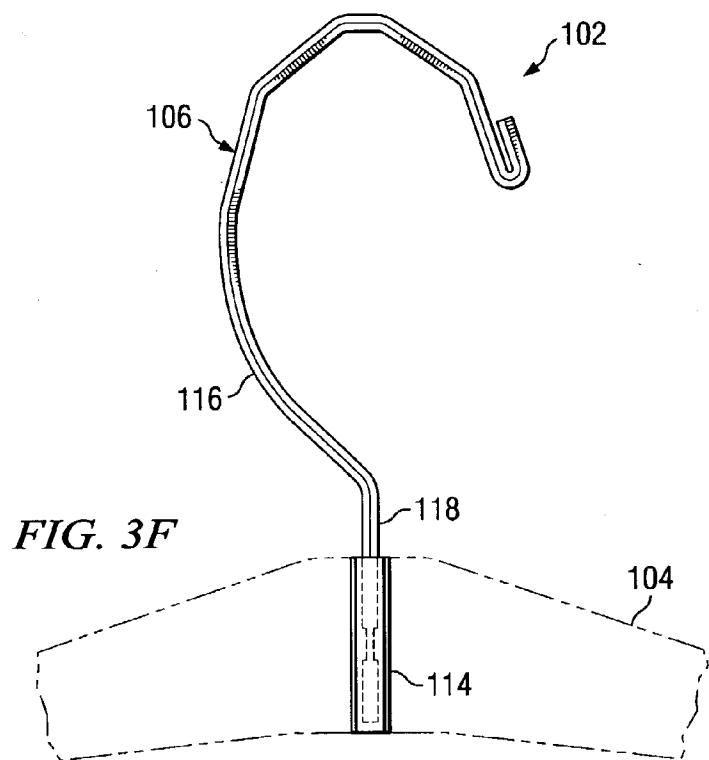
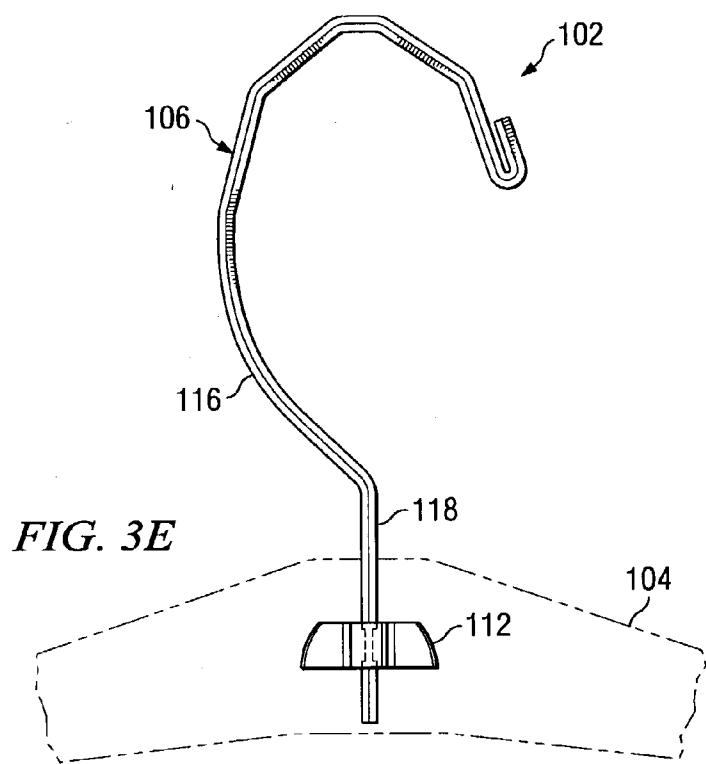


*FIG. 2B*









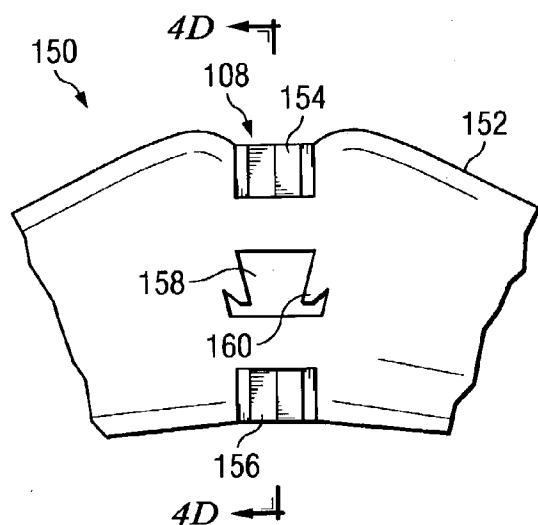


FIG. 4A

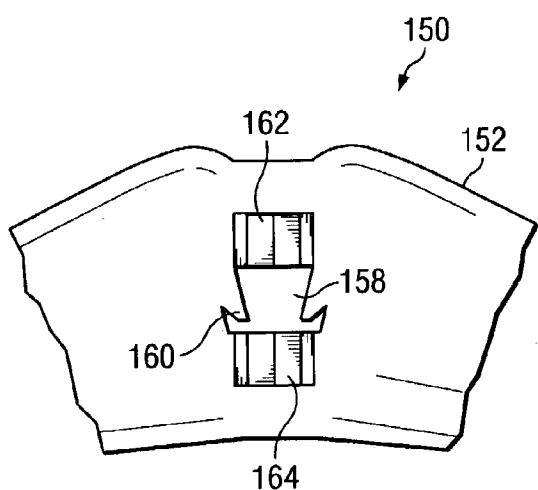


FIG. 4B

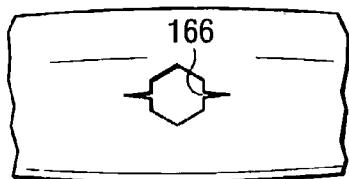


FIG. 4C

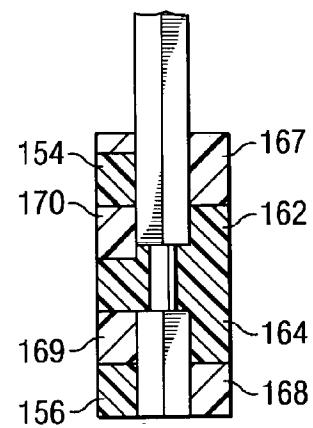


FIG. 4D

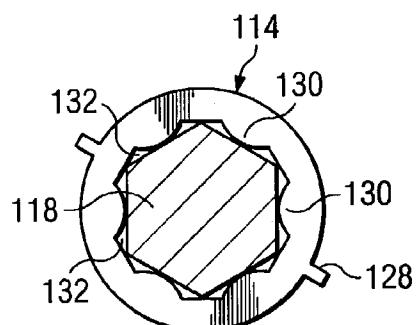


FIG. 5B

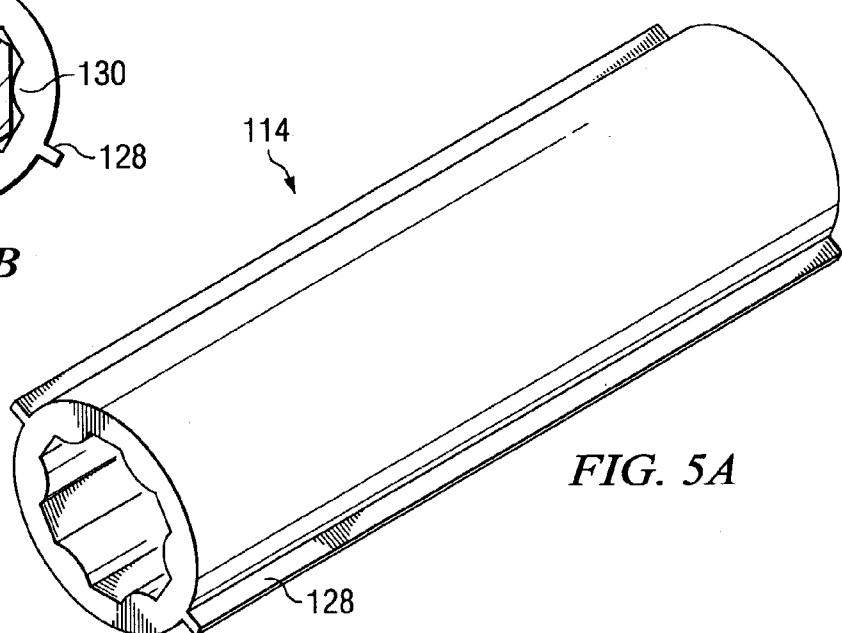


FIG. 5A

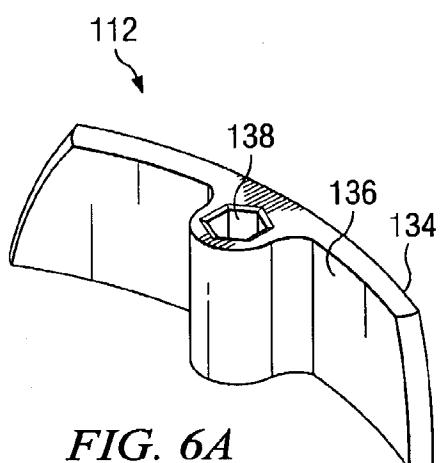


FIG. 6A

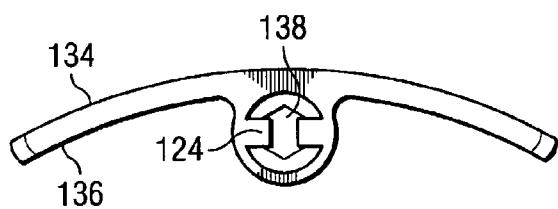


FIG. 6B

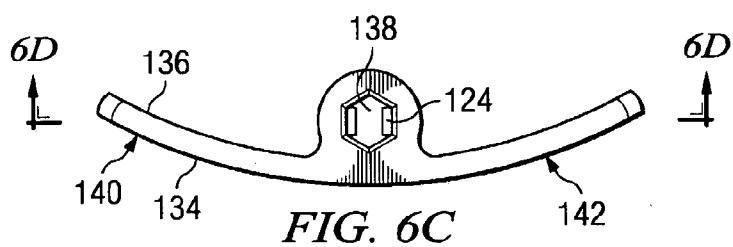


FIG. 6C

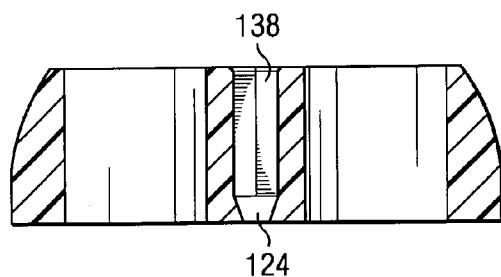


FIG. 6D

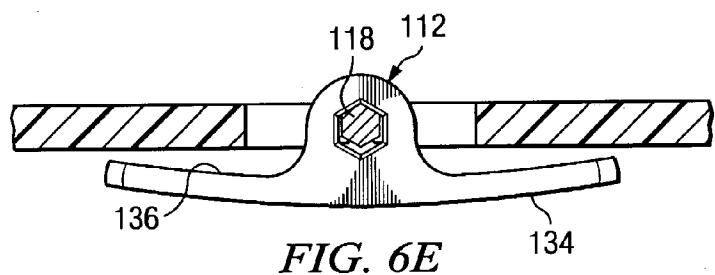


FIG. 6E

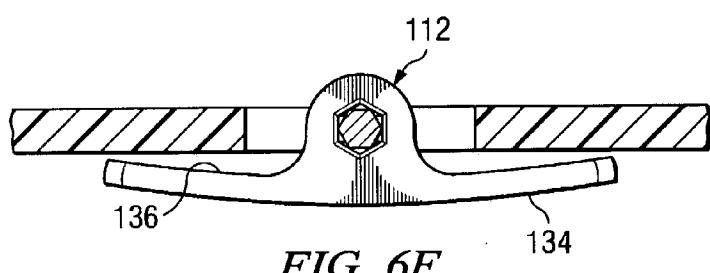


FIG. 6F

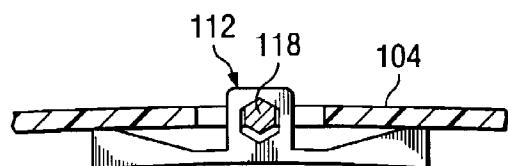


FIG. 7A

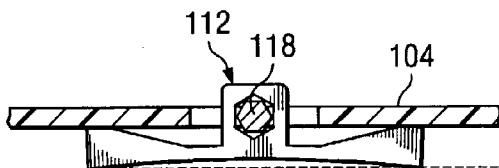


FIG. 7B

## SYSTEM FOR FRONTAL DISPLAY OF OBJECTS

### RELATED APPLICATIONS

**[0001]** This patent application claims the benefit of Provisional Patent Application, Serial No. 60/373,194, entitled System for Frontal Display of Objects, filed on Apr. 16, 2002; Provisional Patent Application, Serial No. 60/382,326, entitled System for Frontal Display of Objects, filed on May 22, 2002; and Provisional Patent Application, Serial No. 60/388,131, entitled Hanger for Frontal Display of Objects, filed on Jun. 12, 2002; the disclosures of which are incorporated herein by reference. This patent application is related to the following concurrently filed patent application, Attorney docket number 6372.2-1, entitled System for Frontal Display of Objects, the disclosure of which is incorporated herein by reference.

### TECHNICAL FIELD OF THE INVENTION

**[0002]** The present invention relates generally to the display of objects, and more particularly to a system for frontal display of objects.

### BACKGROUND OF THE INVENTION

**[0003]** In existing systems for displaying objects, such as garments, ties, mats, towels, linen, etc., the objects are hung or clipped to hangers which are suspended from display bars. Such a system **10** is shown in **FIG. 1A** in which a plurality of objects **12** are hung on conventional hangers and suspended from a rod **14**. A conventional hanger comprises of a hook and a main body. The hook comprises of two portions—a top portion that interfaces with the display bar and a bottom portion that interfaces with the main body of the hanger. The top portion of the hook is circular in shape. Thus, the hanger contacts a round display bar at only one contact point causing the hanger to be unstable when an object is suspended from it. When these hangers are hung on rod **14**, only the narrow sides of the objects are exposed for viewing. As a result, customers or users of such display systems are unable to view the front of the objects with ease. The user has to use effort to part the objects to expose the front of a particular object for viewing. Therefore, much of the characteristics of the object, such as collar style, shape of the neck opening, the style of the fastener used, and design elements that are located on the front and back of a garment, for example, are not easily seen by the user. This is especially disadvantageous in a retail setting, where shoppers have to spend a lot of time and effort to shift the hangers on the rod to get a full view of the object.

**[0004]** **FIG. 1B** is a bottom plan view of prior art object display system **10**. Because the conventional hangers and display rod **14** are perpendicular to each other, the floor space required for hanging objects using prior art object display system **10** is at least as wide as the width **W1** of the hangers.

### SUMMARY OF THE INVENTION

**[0005]** In accordance with an embodiment of the present invention, a hanger comprises a main body disposed in a first plane and a hook coupled to the main body such that the main body and the hook maintain a non-coplanar relationship.

**[0006]** In accordance with another embodiment of the present invention, an object display system comprises a display bar and a plurality of hangers suspended from the display bar, each of the plurality of hangers adapted to display an object of a plurality of objects at an angle other than ninety degrees to the display bar such that at least a portion of a front of each of the plurality of objects is visible simultaneously.

**[0007]** In accordance with yet another embodiment of the present invention, a hanger comprises a main body disposed in a first plane and a swivel hook coupled to the main body such that the main body and the hook maintain a desired relationship with each other.

**[0008]** In accordance with yet another embodiment of the present invention, an object display system comprises a display bar and a plurality of hangers suspended from the display bar, each of the plurality of hangers comprising a main body and a swivel hook coupled to the main body such that the swivel hook and the main body maintain a desired relationship with each other.

**[0009]** Other aspects and features of the invention will become apparent to those ordinarily skilled in the art upon review of the following description of specific embodiments of the invention in conjunction with the accompanying figures.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0010]** For a more complete understanding of the present invention, the objects and advantages thereof, reference is now made to the following descriptions taken in connection with the accompanying drawings in which:

**[0011]** **FIG. 1A** illustrates a prior art object display system;

**[0012]** **FIG. 1B** is a bottom plan view of the prior art object display system of **FIG. 1A**;

**[0013]** **FIGS. 2A and 2B** are front perspective views of a system for frontal display of objects in accordance with an embodiment of the present invention;

**[0014]** **FIG. 2C** is a bottom plan view of an object display system in accordance with an embodiment of the present invention;

**[0015]** **FIG. 2D** is a front elevational view of the object display system of **FIG. 2C**.

**[0016]** **FIG. 3A** is a front elevational view of a hanger in accordance with an embodiment of the present invention;

**[0017]** **FIGS. 3B and 3C** are front and rear elevational views of a hanger in accordance with an alternative embodiment of the present invention illustrating the use or and insertion clip;

**[0018]** **FIGS. 3D and 3E** are front and rear elevational views of a hanger in accordance with another embodiment of the present invention illustrating the use of an alternative embodiment insertion clip;

**[0019]** **FIG. 3F** is a front elevational view of a hanger in accordance with yet another alternative embodiment of the present invention;

[0020] **FIG. 4A** is a front elevational view of a main body of a hanger in accordance with another alternative embodiment of the present invention;

[0021] **FIG. 4B** is a back elevational view of the main body of the hanger of **FIG. 4A**;

[0022] **FIG. 4C** is a bottom plan view of the hanger of **FIG. 4A**;

[0023] **FIG. 4D** is a sectional view taken along section 4D-4D of the main body of **FIG. 4A** interfacing with a portion of a hook;

[0024] **FIG. 5A** is an isometric view of the insertion tube of **FIG. 3F**;

[0025] **FIG. 5B** is a cross-sectional view of the insertion tube of **FIG. 5A** illustrating the interface between the insertion tube and engaging member with the engaging member in a resting position;

[0026] **FIG. 6A** is an isometric view of the insertion clip of **FIG. 3D**;

[0027] **FIG. 6B** is a bottom plan view of the insertion clip of **FIG. 6A**;

[0028] **FIG. 6C** is a top plan view of the insertion clip of **FIG. 6A**;

[0029] **FIG. 6D** is a sectional view taken along section 6D-6D of the insertion clip of **FIG. 6C**;

[0030] **FIG. 6E** is a top plan view of the insertion clip of **FIG. 6C** illustrating the interface between the insertion clip and the engaging member with the engaging member in a resting position;

[0031] **FIG. 6F** is a top plan view of the insertion clip of **FIG. 6E** illustrating the interface between the insertion clip and the engaging member with the engaging member in an intermediate position;

[0032] **FIG. 7A** is a top plan view of the insertion clip of **FIG. 3B** illustrating the interface between the insertion clip and the engaging member with the engaging member in a resting position; and

[0033] **FIG. 7B** is a top plan view of the insertion clip of **FIG. 3B** illustrating the interface between the insertion clip and the engaging member with the engaging member in an intermediate position.

#### DETAILED DESCRIPTION OF THE DRAWINGS

[0034] The preferred embodiment of the present invention and its advantages are best understood by referring to **FIGS. 1 through 7B** of the drawings.

[0035] **FIGS. 2A and 2B** are front perspective views of a system **100** for frontal display of objects in accordance with an embodiment of the present invention, in which at least a portion of the front of each object on display is visible. In accordance with an embodiment of the present invention, a hanger **102** is disclosed, which when used to hang an object, for example a garment, from a display bar or rod **18**, orients the object at an angle with respect to display bar **18**. Thus, when multiple hangers, each with an object hung from it, are suspended from display bar **18**, at least a portion of the front of each of the objects is simultaneously visible to the user. The hung objects are oriented by the hangers at an angle to

display bar **18** and overlap slightly to allow a portion of the garments' front to be viewed simultaneously. This provides sufficient additional information about the objects on display to the users and the users do not need to rearrange each object in order to see its characteristics clearly.

[0036] In accordance with an embodiment of the present invention, the hangers may be used for left-handed (**FIG. 2A**) and/or right-handed (**FIG. 2B**) display of objects to correspond with the requirements for displaying objects that may be used in different retail outlets, countries, distributors, manufacturers, and/or the like. In the preferred embodiment, the hanger is made of plastic using injection molding. If desired, other manufacturing methods and/or materials, such as metal, wood, and/or a composite of materials may be used for making the hanger.

[0037] **FIG. 2C** is a bottom plan view of object display system **100**. As illustrated in **FIG. 2C**, a plurality of hangers **102** are suspended from display bar **18** such that the hangers are oriented at an angle other than ninety degrees with respect to display bar **18**. Because the hangers are oriented at an angle, the floor space required for hanging objects on display bar **18** is less than the width of the hangers, **W1** (**FIG. 1B**). In the embodiment of **FIG. 2C**, the width of the required floor space for hangers **102** is **W2**, where **W2**<**W1**.

[0038] **FIG. 2D** is a front elevational view of object display system **100**. It may be seen that display bars using hanger **102** may be affixed closer to a wall than when conventional hangers are used. This is especially useful in closets or rooms where limited space is available for hanging and storing objects. Moreover, because the display bar may be placed closer to the wall, more than one display bar may be placed along the same wall. For example, as illustrated in **FIG. 2D**, a first display bar **18<sub>1</sub>** may be placed closer to the wall at a distance **X** than a second display bar **18<sub>2</sub>**, which is located at a distance **Y** from the wall, wherein **Y** is still less than **W1**, the width of a hanger. First display bar **18**, may also be placed higher than second display bar **18<sub>2</sub>**. Thus, longer objects, such as dresses and gowns, may be displayed on the first display bar **18<sub>1</sub>**, and shorter objects, such as shirts, blouses and pants, may be displayed on the second and lower display bar **18<sub>2</sub>**.

[0039] **FIG. 3A** is a front elevational view of hanger **102** in accordance with an embodiment of the present invention, **FIGS. 3B and 3C** are front and rear elevational views of hanger **102** in accordance with an alternative embodiment of the present invention illustrating the use of an insertion clip, **FIGS. 3D and 3E** are front elevational views of hanger **102** in accordance with another embodiment of the present invention illustrating the use of an alternative embodiment insertion clip, and **FIG. 3F** is a front elevational view of hanger **102** in accordance with yet another alternative embodiment of the present invention.

[0040] Hanger **102** comprises a main body **104** and a swivel hook **106** coupled to main body **104**. Swivel hook **106** is preferably rotatably coupled to main body **104**. Main body **104** preferably comprises one or more hook receiving channels **108**. Preferably, each of the hook receiving channels is oriented vertically in main body **104**.

[0041] Swivel hook **106** preferably comprises of two portions—a top portion **116** and a bottom portion **118**. Top portion **116** interfaces with display bar **18** and bottom

portion 118 interfaces with main body 104 and is disposed in hook receiving channel 108. Top portion 116 has a generally curved profile for hanging and holding onto a display bar. Top hook portion 116 may have a smooth and continuous curved profile or may comprise of a plurality of discontinuous contact arms, for example a top contact arm 120<sub>1</sub>, two upper contact arms 120<sub>2</sub> and 120<sub>3</sub>, and a side contact arm 120<sub>4</sub> (collectively 120). Preferably, adjacent contact arms are at the same angle to each other. Thus, for example, the angle formed by contact arms 120<sub>4</sub> and 120<sub>2</sub> is the same as the angle formed by contact arms 120<sub>2</sub> and 120<sub>1</sub>, which is the same as the angle formed by contact arms 120<sub>1</sub> and 120<sub>3</sub>.

[0042] The configuration of top hook portion 116 is preferably non-circular. When hanger 102 is suspended from a display bar, the non-circular configuration of top portion 116 enables the display bar to contact top portion 116 of hook 106 at two or more contact points located on either side of the center of gravity of hanger 102. These multiple contact points provide greater stability to hanger 102. In its resting position, it is desirable to have the hanger contact the display bar at at least two contact points. The amount of contact at the contact point facilitates the object to come to its natural resting position quickly and with little sway. The actual number of contact points between top portion 116 and display bar 18 will vary depending on the diameter of the display bar, the angle between adjacent contact arms, the length of each arm, and/or the like. It is desirable that the resting contact points be located on either side of the center of gravity of hanger 102 so that the object may be displayed on hanger 102 in a stable position. This also facilitates displaying the object facing a desired direction.

[0043] The angle between two contact arms is the angle formed by an axis of each of the arms at the point of intersection of the axes. Preferably, the angle between upper contact arms 120<sub>2</sub> and 120<sub>3</sub> is seventy-two degrees. However, the invention is not so limited and if desired the contact arms may be at any angle to each other so long as the display bar contacts top portion 116 of hook 106 at at least two contact points. The preferred range of angles between the upper contact arms is between twenty and one hundred and forty degrees.

[0044] Preferably, the cross-section of swivel hook 106 is non-circular. If desired, the cross-section of only bottom portion 118 of hook 106 may be non-circular and the cross-section of top portion 116 of swivel hook 106 may be circular or non-circular. The terms "bottom portion of hook" and "engaging member" are used interchangeably hereinafter. In the illustrated exemplary embodiments, the cross-section of swivel hook 106 is hexagonal. However, the invention is not so limited and if desired, hook 106 in general and engaging member 118 in particular of hook 106 may have more or less than six sides. For example, if desired, engaging member 118 may have four or eight sides.

[0045] Hook 106 is preferably made of a material or combination of materials that is resilient and that make it difficult to bend hook 106. For example, hook 106 may be made of plastic, such as a heavy duty plastic and/or metal, such as steel, and/or the like.

[0046] Engaging member 118 may be disposed in hook receiving channel 108. As illustrated in FIGS. 4A through 4D, hook receiving channel 108 may be adapted or shaped

such that when engaging member 118 is inserted into hook receiving channel 108, channel 108 "locks" engaging member 118 in one of a plurality of possible positions, which cause hook 106 and hanger main body 104 to be in the same or different planes. In an exemplary embodiment, each of the plurality of possible positions cause hook 106 and hanger main body 104 to be in different planes. Thus, when hanger 102 is suspended from a display bar, a plane of hanger main body 104 intersects an axis of the display bar at an angle other than ninety degrees. In the embodiment of FIGS. 3B through 3E, an insertion clip 112 may be used to cause hanger main body 104 to intersect an axis of the display bar at an angle. In such an embodiment, hook receiving channel 108 and insertion clip 112 may be adapted or shaped such that when engaging member 118 is inserted into hook receiving channel 108 and insertion clip 112, engaging member 118 is locked in one of a plurality of possible positions, which cause hook 106 and hanger main body 104 to be in the same or different planes. In the embodiment of FIG. 3F, an insertion tube 114 may be used to cause hanger main body 104 to intersect an axis of the display bar at an angle. In such an embodiment, hook receiving channel 108 and insertion tube 114 may be adapted or shaped such that when engaging member 118 is inserted into hook receiving channel 108 and insertion tube 114, engaging member 118 is locked in one of a plurality of possible positions, which cause hook 106 and hanger main body 104 to be in the same or different planes. If desired, in an alternative embodiment, some of the plurality of possible positions cause hook 106 and hanger main body 104 to be in the same plane whereas the remaining ones of the plurality of possible positions cause hook 106 and hanger main body 104 to be in different planes.

[0047] Main body 104 of hanger 102 may also include a clip receiving cavity 110. In an exemplary embodiment, an insertion clip 112 may be inserted into clip receiving cavity 110 as shown in FIGS. 3B, 3C, 3D and 3E. Engaging member 118 of hanger hook 106 may be inserted into insertion clip 112 through hook receiving channel 108 such that bottom portion 118 forms a snug fit with insertion clip 112. If desired, in an alternative embodiment, insertion clip 112 may be "clipped" onto engaging member 118 after engaging member 118 has been inserted into hook receiving channel 108. In the exemplary embodiment, insertion clip 112 preferably includes an engaging member receiving slot 138 (FIG. 6A) which is preferably shaped such that when engaging member 118 is inserted in insertion clip 112, insertion clip 112 "locks" engaging member 118 in one of a plurality of possible positions. Engaging member 118 of hook 106 may include a retaining groove 122. Retaining groove 122 engages with one or more hook retaining members 124 (FIG. 6B) provided in engaging member receiving slot 138 of insertion clip 112 to prevent engaging member 118 from being inadvertently removed from main body 104.

[0048] FIGS. 7A and 7B illustrate the interfacing of a hexagonal engaging member 118 with insertion clip 112 of FIGS. 3B and 3C and FIGS. 6E and 6F illustrate the interfacing of a hexagonal engaging member 118 with insertion clip 112 of FIGS. 3D and 3E.

[0049] Referring back to FIG. 3A, an indentation may be provided in main body 104 in proximity to clip receiving cavity 110. The indentation may be used to accept at least a portion, for example a flange 140 or 142 (FIG. 6C), of

insertion clip 112 to prevent insertion clip 112 from rotating when swivel hook 106 is rotated. The shape of the indentation preferably corresponds substantially to the shape of the insertion clip flange used. Thus, for example, when an insertion clip, such as the one illustrated in **FIGS. 3B and 3C** is used, the shape of the indentation is preferably rectangular. On the other hand, when an insertion clip such as the one illustrated in **FIGS. 3D and 3E** is used, the shape of the indentation is preferably round.

**[0050]** In order to facilitate the frontal display of objects, it is desirable that hook 106 and main body 104 of hanger 102 be in different planes or be non-coplanar. Because engaging member 118 may be locked in a plurality of positions by insertion clip 112, hook 106 of hanger 102 may be locked at different angles with respect to a plane of hanger main body 104 thereby allowing hanger 102 to be placed on display bar 18 at an angle. Thus, main body 104 of hanger 102 may be disposed at an angle to the longitudinal axis of display bar 18. The angle at which main body 104 of hanger 102 is disposed with respect to display bar 18 may be ninety degrees or an angle other than ninety degrees.

**[0051]** As illustrated in **FIG. 3F**, one or more insertion tubes 114 may be inserted into or be part of one or more hook receiving channels 108 of hanger main body 104. Insertion tube 114 is also capable of receiving engaging member 118.

**[0052]** Engaging member 118 is operable to interface with insertion tube 114 to form a snug fit. The inside of insertion tube 114 is preferably shaped such that when engaging member 118 is inserted in insertion tube 114, insertion tube 114 "locks" engaging member 118 in one of a plurality of possible positions. **FIG. 5B** illustrates the interfacing of a hexagonal engaging member 118 with insertion tube 114. Because engaging member 118 may be locked in a plurality of positions by insertion tube 114, hook 106 of hanger 102 may be locked at different angles with respect to a plane of hanger main body 104 thereby allowing hanger 102 to be placed on display bar 18 at an angle. Thus, main body 104 of hanger 102 may be disposed at an angle to the longitudinal axis of display bar 18.

**[0053]** The structure of an exemplary insertion tube 114 is discussed in greater detail herein with reference to **FIGS. 5A and 5B**.

**[0054]** Although in the embodiments illustrated in **FIGS. 3A-3F**, hook receiving channel 108, clip receiving cavity 110, insertion clip 112 and/or insertion tube 114 are visible, the invention is not so limited and in alternative embodiments, one or more of the above may be hidden.

**[0055]** It should be noted that the embodiments of **FIGS. 3B, 3C, 3D and 3E** do not include insertion tube(s) and the embodiment of **FIG. 3F** does not include an insertion clip. Thus, it should be apparent from **FIGS. 3B through 3F**, that, if desired, the hanger may include either the insertion tube(s) and/or the insertion clips. If desired, the hanger may not include either the insertion tubes or the insertion clips and still facilitate frontal display of objects. Such an embodiment is discussed herein with reference to **FIGS. 4A through 4D**.

**[0056]** **FIG. 4A** is a front elevational view of a main body 152 of a hanger 150 in accordance with another alternative embodiment of the present invention, **FIG. 4B** is a back

elevational view of main body 152, **FIG. 4C** is a bottom plan view of hanger 150 and **FIG. 4D** is a sectional view taken along section 4D-4D of main body 152.

**[0057]** The insertion tube and/or the insertion clip may be formed or molded as part of the hanger main body. Thus, as shown in **FIGS. 4A through 4D**, hook receiving channel(s) 108 of main body 152 itself may be adapted to include a plurality of indentations 154, 156, 162 and 164. Indentations 154 and 156 are provided on a back surface of hanger main body 152 and indentations 162 and 164 are provided on a front surface of hanger main body 152. Preferably, each of the indentations is adapted or shaped such that at least two of the indentations, for example indentations 154 and 162 or indentations 156 and 164, cooperate to lock an engaging member 118, inserted into main body 152 via the indentations, into one of a plurality of possible positions. As shown in **FIG. 4C**, main body 152 may comprise a gap 166. In the illustrated embodiment of **FIGS. 4A-4D**, each of the indentations is shaped substantially like one-half of a hexagon. Indentations 154 and 162 are respectively back and front portions of a hexagonal structure which may be used to lock a hook in one of a plurality of positions. Similarly, indentations 156 and 164 are respectively back and front portions of another hexagonal structure which may be used to lock the hook in one of a plurality of positions. The advantage of having two indentations cooperating with each other to form a hexagonal structure is that it makes it easier for the user to swivel the hook and lock it in a different position to change the angle of the hook with respect to main body 152. **FIG. 4D** illustrates pressure points 167, 168, 169 and 170 where hanger main body 152 contacts hook 106 to lock it in position.

**[0058]** Although in the illustrated embodiment of **FIGS. 4A-4D**, the indentations cooperate to form a hexagonal structure which may be used to lock a hook in one of a plurality of positions, the invention is not so limited. If desired, a single indentation of the desired shape may be used for this purpose. Furthermore, main body 152 of hanger 150 may have a fewer or greater number of indentations.

**[0059]** Hanger main body 152 also comprises a cavity 158. One or more hook retaining members 160 may be provided in cavity 158. Hook retaining members 160 act as directional stops that allow engaging member 118 of hook 106 to be inserted into main body 152 of hanger 150 but make it difficult for hook 106 to be taken out of main body 152. Retaining groove 122 (**FIG. 3A**) of hook 106 engages with hook retaining members 160 to prevent engaging member 118 from being inadvertently removed from main body 152. Preferably, the bottom portion of retaining groove 122 interfaces with bottom portion of retaining members 160. Retaining members 160 and groove 122 may be of any shape. The shape of retaining members 160 and groove 122 is such that it allows hook 106 to be spun within main body 152 to a different locked position. Any number of hook retaining members 160 may be used. If desired, a portion of one or more hook retaining members 160 may protrude from main body 152.

**[0060]** If desired, a hook stop (not explicitly shown) may be provided below indentation 156 to facilitate insertion of the hook in the hanger main body and to provide strength to the hanger. The hook stop prevents hook 106 from protruding from below main body 152. The shape of the hook stop

is preferably concave, although it may be any shape. The hook stop also provides strength to the hanger to keep the hook locked in one of the plurality of positions without interfering with the hanger's ability to flex when engaging member 118 of hook 106 is being rotated.

[0061] Using hook receiving channel(s) 108 of FIGS. 4A through 4D, hook 106 may be positioned in one of six possible positions with respect to main body 152 of hanger 150. Because of the shape of hook receiving channel(s) 108, the angle between hook 106 and main body 152 is not inadvertently changed and hook 106 remains at its intended angle to main body 152 until a user affirmatively changes its position.

[0062] When it is desirable to change the angle between hook 106 and main body 104, a user may simply rotate hook 106 from its current resting position in main body 152 to a new locked position. Gap 166 allows the portion of main body 152 surrounding gap 166 to be flexed or slightly bent when engaging member 118 of hook 106 is rotated.

[0063] The angle between the plane of the hook and the plane of the hanger main body determines the angle at which the object is oriented with respect to the display bar. In the case of a symmetrical hexagonal engaging member 118, hanger 102 may be placed on display bar 18 such that each side of hanger main body 104 may be at three potential angles to the display bar thereby providing a total of six different angles. The different angles facilitate displaying the objects at different angles and/or orientations. Depending on the angle, when multiple hangers, each with an object hung on it, are suspended from the display bar, the objects overlap each other. However, at least a portion of the front of each object is exposed instead of only the sides of the objects.

[0064] FIG. 5A is an isometric view of insertion tube 114 of FIG. 3F and FIG. 5B is a cross-sectional view of insertion tube 114 illustrating the interface between the insertion tube and engaging member 118 with engaging member 118 in a resting position. The shape of the outside of insertion tube 114 preferably corresponds to the shape of hook receiving channel 108. In the illustrated embodiment, insertion tube 114 is generally cylindrical. Insertion tube 114 may be provided with one or more engaging members 128 on an outside surface. Engaging members 128 engage with one or more corresponding engaging channels (not shown) provided in main body 104 of hanger 102. If desired, the engaging channels may be part of hook receiving channels 108. The engagement of engaging members 128 with hook receiving channels 108 facilitates locking of insertion tube 114 in a fixed position in hanger main body 104 and prevents insertion tube 114 from moving around.

[0065] Preferably, the inside of insertion tube 114 is hollow to enable engaging member 118 to be inserted therein. The inside of insertion tube 114 is shaped or adapted such that when engaging member 118 is inserted in insertion tube 114, insertion tube 114 "locks" engaging member 118 in one of a plurality of possible positions. In the illustrated embodiment, the inside of insertion tube 114 is adapted to include one or more biasing elements 130 and one or more receiving cavities 132. Preferably, the number of biasing elements 130 and receiving cavities 132 is same and is equal to the number of the sides of engaging member 118.

[0066] Engaging member 118 may be locked in one of a plurality of positions by simply rotating hanger hook 106

until a position is found in which a portion of engaging member 118, for example a corner of engaging member 118, rests in one of the receiving cavities 132. In this position, each of the corners of engaging member 118 rest in one of the receiving cavities 132. Biasing elements 130 prevent engaging member 118 from rotating freely.

[0067] Thus, using insertion tube 114, hook 106 may be positioned in one of six possible positions with respect to main body 104 of hanger 102. Because of the shape of the inside of insertion tube 114, the angle between hook 106 and main body 104 is not inadvertently changed and hook 106 remains at its intended angle to main body 104 until the user affirmatively changes its position.

[0068] FIG. 6A is an isometric view of insertion clip 112 of FIG. 3D, FIG. 6B is a bottom plan view of insertion clip 112, FIG. 6C is a top plan view of insertion clip 112, FIG. 6D is a sectional view taken along section 6D-6D of insertion clip 112 of FIG. 6C, FIG. 6E is a top plan view of insertion clip 112 illustrating the interface between the insertion clip and engaging member 118 with the engaging member in a resting position and FIG. 6F is a top plan view of insertion clip 112 illustrating the interface between the insertion clip and the engaging member with the engaging member in an intermediate position.

[0069] Insertion clip 112 comprises a front surface 134 and a back surface 136. Insertion clip 112 also comprises an engaging member receiving slot 138 for receiving engaging member 118. Preferably, engaging member receiving slot 138 extends along a length of insertion clip 112 and is located along the middle of insertion clip 112. Insertion clip 112 comprises two symmetrical flanges 140 and 142. Flanges 140 and 142 are shaped such that they may be accepted into the indentation in the main body of the hanger. Thus, in a preferred embodiment, insertion clip 112 does not protrude out of main body 104 of hanger 102 to prevent damage to objects suspended from hanger main body 104.

[0070] Engaging member receiving slot 138 is shaped or adapted such that when engaging member 118 is inserted therein, insertion clip 112 "locks" engaging member 118 in one of a plurality of possible positions. In the embodiment of FIGS. 6A-6F, engaging member receiving slot 138 is hexagonal to correspond with the cross-sectional shape of engaging member 118. Thus, using insertion clip 112 of FIGS. 6A-6F, hook 106 may be positioned in one of six possible positions with respect to main body 104 of hanger 102. Because of the shape of engaging member receiving slot 138, the angle between hook 106 and main body 104 is not inadvertently changed and hook 106 remains at its intended angle to main body 104 until the user affirmatively changes its position.

[0071] Insertion clip 112 may also comprise one or more hook retaining members 124 (FIG. 6B) preferably disposed inside engaging member receiving slot 138. Preferably, hook retaining members 124 are disposed near an end of insertion clip 112 distal from top portion 116 of hook 106. If desired, hook retaining members 124 may be disposed near an end of insertion clip 112 proximal to top portion 116 of hook 106. As illustrated in FIG. 6D, hook retaining members 124 act as directional stops that allow engaging member 118 of hook 106 to be inserted into insertion clip 112 but making it difficult for hook 106 to be taken out of insertion clip 112.

[0072] Retaining groove 122 (FIG. 3A) of hook 106 engages with hook retaining members 124 to prevent engag-

ing member 118 from being inadvertently removed from insertion clip 112. Preferably, the bottom portion of retaining groove 122 interfaces with bottom portion of retaining members 124. Retaining members 124 and groove 122 may be of any shape. The shape of retaining members 124 and groove 122 is such that it allows hook 106 to be spun within insertion clip 112 to a different locked position. Any number of hook retaining members 124 may be used. Preferably, the length of hook retaining members 124 is equal to the length of groove 122. Hook retaining members 124 may be located anywhere inside engaging member receiving slot 138. If desired, a portion of one or more hook retaining members 124 may protrude from insertion clip 112.

[0073] When it is desirable to change the angle between hook 106 and main body 104, a user may simply rotate hook 106 from its current resting position in insertion clip 112 to a new locked position. Flanges 140 and 142 interface with hanger main body 104 to prevent insertion clip 112 from being rotated along with hook 106.

[0074] FIG. 6E shows hanger main body 104, insertion clip 112 and engaging member 118 with engaging member 118 in one of six possible resting positions inside engaging member receiving slot 138 of insertion clip 112. FIG. 6F shows engaging member 118 as it is being swiveled from one locked position to a second locked position at a different angle. Hook receiving channel 108 (FIG. 3A) in hanger main body 104 is slightly off-centered from engaging member receiving slot 138 of insertion clip 112. As such, when engaging member 118 is being swiveled from one locked position to another, hanger main body 104 applies pressure to force engaging member 118 into one of a plurality of positions in insertion clip 112.

[0075] Insertion clip 112 of FIGS. 6A through 6F is generally circular and is preferably flat at the bottom. If desired, insertion clip 112 may be of any shape.

[0076] FIG. 7A is a top plan view of insertion clip 112 of FIG. 3B illustrating the interface between insertion clip 112 and engaging member 118 with engaging member 118 in a resting position and FIG. 7B is a top plan view illustrating the interface between insertion clip 112 and engaging member 118 with engaging member 118 in an intermediate position. Insertion clip 112 of FIGS. 7A and 7B is of a generally rectangular shape and operates in a manner similar to insertion clip 112 of FIGS. 6A through 6F.

[0077] The body of the insertion clip may include a cavity. During assembly of the hanger, the cavity may be used to allow a press to flatten a portion of the bottom of the hook to further prevent the hook from slipping out of the main body of the hanger. The presence of the retaining groove and the hook retaining members may eliminate the need of using presses to flatten a portion of the bottom of the hook. If desired, a washer, for example a C-shaped clamp lock washer may be used.

[0078] The hanger may comprise of one or more slots. The slots may be provided on the main body of the hanger and may be used to removably couple one or more informational tags to the hanger for fast and easy identification of information, such as brand, size, price, style, color and/or other information. The tag may be a push tag and may comprise one or more tabs that may be inserted in the slots. If desired, the tag may be fastened to the slots using some other means.

Because the hanger has a front exposed portion, the slot may be provided on the exposed portion and the tag placed thereon to allow simultaneous viewing of the informational tags provided on a plurality of hangers hanging from a display bar.

[0079] The engaging member of the swivel hook, the insertion tube, or the receiving cavity of the insertion clip, may be of any desired shape as long as the insertion tube and/or the receiving cavity of the insertion clip are capable of receiving the engaging member and locking the swivel hook in at least one of a plurality of positions. Furthermore, it is not necessary that the engaging member, the insertion tube and the receiving cavity of the insertion clip, correspond to each other in shape. If desired, the engaging member, the insertion tube, or the receiving cavity of the insertion clip may be of different shapes so long as the engaging member is capable of interfacing with the insertion tube and/or the receiving cavity of the insertion clip. Furthermore, if desired, the insertion clip may be designed to allow printing on the insertion clip and/or affixing of labels on the insertion clip.

[0080] Hanger main body 104 may be of any shape or size and may comprise of one or more arms extending in opposite directions from the base of the hanger hook to facilitate an object to be suspended therefrom. The arms may be straight or curved. If desired, the arms may be disposed at an angle to each other. Thus, for example, the main body may be triangular, elliptical, straight, and/or the like. Alternatively, the main body may be similar in construction to that shown in U.S. Pat. No. 6,006,964. Objects may be suspended from the hanger by simply hanging them on the arms. If desired, clips, hooks or other devices may be fastened to the main body and the objects may be suspended by them. Additional channels and grooves may be provided on the hangers to receive shoulder straps, skirt straps and other parts of the objects.

[0081] During shipping it is desirable that the hanger main body be at a ninety degree angle with respect to the display bar, while during display some retailers may desire that the hanger main body be at an angle other than ninety degrees with respect to the display bar, whereas other retailers may desire that the hanger main body be at a ninety degree angle with respect to the display bar. In accordance with an embodiment of the present invention, because the engaging member may be locked in a plurality of positions, the main body of the same hanger may be placed at a ninety degree angle with respect to the display bar or at an angle other than ninety degrees with respect to the display bar depending on the application.

[0082] In a conventional hanger without a swivel hook, if the user inadvertently places the object on the hanger in such a way that when the hanger is placed on the display bar the front of the object faces the wrong direction, the user has to remove the object and place it back on the hanger so that the front of the object would face a desired direction. A conventional hanger with a swivel hook allows the object to be placed on the display bar with the front of the object facing in the desired direction irrespective of the manner in which the object is placed on the main body of the hanger. However, a conventional hanger with a swivel hook does not allow frontal display of multiple objects along a uniformly horizontal display bar.

**[0083]** The advantage of a hanger in accordance with an exemplary embodiment of the present invention is that it allows an object to be displayed with the front of the object always facing the desired direction. For example, if the user places the object on the hanger with the front of the object facing the wrong direction, the hanger may still be placed on the display bar in a manner that would allow the front of the object to face the desired direction. By simply turning the hook around and placing it on the display bar, the user can display the object hanging from the display bar such that the front of the object is facing the right direction. Furthermore, the hanger in accordance with an exemplary embodiment of the present invention allows frontal display of the objects along a uniformly horizontal display bar.

**[0084]** An advantage of an exemplary embodiment of the present invention is that it allows simultaneous viewing of the colors, styles, patterns and/or other attributes of the displayed objects. Moreover, the fronts of the objects are still visible even when the objects are tightly packed together on the display bar. Another advantage of an exemplary embodiment is that it allows for faster and easier searching of objects with the right size, color, style, and pattern. Another advantage of an exemplary embodiment is that a greater portion of the front of the object is displayed. Yet another advantage of an exemplary embodiment is that closets or display cases that are narrower than the width of the hanger may be used.

**[0085]** While the invention has been particularly shown and described by the foregoing detailed description, it will be understood by those skilled in the art that various other changes in form and detail may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. A hanger, comprising:
  - a main body disposed in a first plane; and
  - a hook coupled to said main body such that said main body and said hook maintain a non-coplanar relationship.
2. The hanger of claim 1, said hook adapted to couple with said main body such that upon being suspended from a display bar said first plane intersects a longitudinal axis of said display bar at an angle other than ninety degrees.
3. The hanger of claim 1, wherein a cross-section of a portion of said hook coupled to said main body is non-circular.
4. The hanger of claim 1, wherein a cross-section of a portion of said hook coupled to said main body is hexagonal.
5. The hanger of claim 1, wherein a top portion of said hook comprises a plurality of discontinuous contact arms disposed at a desired angle to each other.
6. The hanger of claim 2, wherein a top portion of said hook is adapted to contact said display bar at at least two contact points.
7. The hanger of claim 1, wherein a bottom portion of said hook comprises a retaining groove operable to engage with a portion of said hook to retain said hook in said main body.
8. The hanger of claim 1, wherein said main body comprises at least one hook receiving channel operable to receive at least a portion of an engaging member of said hook.
9. The hanger of claim 8, wherein said at least one hook receiving channel is disposed vertically in said main body.
10. The hanger of claim 1, wherein said main body comprises at least one hook receiving channel adapted to receive at least a portion of an engaging member of said hook to lock said hook in one of a plurality of predetermined positions such that said hook and said main body are non-coplanar.
11. The hanger of claim 1, wherein said main body comprises at least one hook receiving channel having a non-circular cross-section, said hook receiving channel operable to receive at least a portion of said hook to lock said hook in one of a plurality of positions such that said hook and said main body are non-coplanar.
12. The hanger of claim 11, further comprising at least one hook retaining member disposed in said main body, said at least one hook retaining member operable to engage with a retaining groove of said hook to retain said portion of said hook in said main body.
13. The hanger of claim 11, said at least one hook receiving channel being adapted to facilitate positioning of said hook at a plurality of positions, wherein at each of said plurality of positions a plane of said hook is at a predetermined angle with respect to said first plane.
14. The hanger of claim 1, wherein said hook is operable to receive a display bar to display an object at an angle with respect to said display bar.
15. The hanger of claim 14, wherein said angle with respect to said display bar at which said object is displayed is determined at least in part on an angle between said hook and said main body.
16. The hanger of claim 1, wherein said main body comprises at least one slot operable to display an information tag.
17. The hanger of claim 16, wherein said information tag is removably coupled to said main body.
18. A hanger, comprising:
  - a main body;
  - a hook coupled to said main body; and
  - an insertion clip adapted to receive at least a portion of said hook such that said hook and said main body maintain a non-coplanar relationship.
19. The hanger of claim 18, wherein said insertion clip is operable to maintain said hook at an angle other than zero degrees with respect to said main body.
20. The hanger of claim 18, wherein said insertion clip comprises a slot for receiving said portion of said hook, said slot having a non-circular cross-section.
21. The hanger of claim 18, wherein said insertion clip comprises a slot shaped to correspond to a shape of a cross-section of said portion of said hook, said slot operable to receive said portion of said hook to lock said hook in one of a plurality of positions such that said hook is at an angle to said main body.
22. The hanger of claim 21, wherein at each of said plurality of positions a plane of said hook is at a predetermined angle with respect to a plane of said main body.
23. The hanger of claim 21, further comprising at least one hook retaining member disposed in said slot, said at least one hook retaining member operable to engage with a retaining groove of said hook to retain said portion of said hook in said main body.
24. The hanger of claim 18, wherein said main body comprises at least one hook receiving channel, said portion

of said hook being inserted into said at least one hook receiving channel and said insertion clip.

**25.** The hanger of claim 18, wherein said main body comprises an indentation operable to accept at least one flange of said insertion clip.

**26.** The hanger of claim 18, wherein said main body comprises a cavity operable to receive said insertion clip.

**27.** A hanger, comprising:

a main body;

a hook coupled to said main body; and

an insertion tube disposed vertically in said main body, said insertion tube adapted to receive at least a portion of said hook such that said hook and said main body maintain a non-coplanar relationship.

**28.** The hanger of claim 27, wherein said insertion tube is operable to maintain said hook at an angle other than zero degrees with respect to said main body.

**29.** The hanger of claim 27, wherein said insertion tube comprises a slot for receiving said portion of said hook, said slot having a non-circular cross-section.

**30.** The hanger of claim 27, wherein said insertion tube comprises a slot shaped to correspond to a shape of a cross-section of said portion of said hook, said slot operable to receive said portion of said hook to lock said hook in one of a plurality of positions such that said hook is at an angle to said main body.

**31.** The hanger of claim 30, wherein at each of said plurality of positions a plane of said hook is at a predetermined angle with respect to a plane of said main body.

**32.** The hanger of claim 27, wherein said main body comprises at least one hook receiving channel, said insertion tube being disposed in said hook receiving channel.

**33.** The hanger of claim 27, wherein said main body comprises a cavity operable to receive an insertion clip.

**34.** An object display system, comprising:

a display bar; and

a plurality of hangers suspended from said display bar, each of said plurality of hangers adapted to display an object of a plurality of objects at an angle other than ninety degrees to said display bar such that at least a portion of a front of each of said plurality of objects is visible simultaneously.

**35.** The object display system of claim 34, wherein at least one of said plurality of hangers comprises:

a main body disposed in a first plane; and

a hook coupled to said main body such that said main body and said hook maintain a non-coplanar relationship.

**36.** The object display system of claim 35, wherein a cross-section of a portion of said hook coupled to said main body is hexagonal.

**37.** The object display system of claim 35, wherein said hook is adapted to couple with said main body such that upon being suspended from a display bar said first plane intersects a longitudinal axis of said display bar at an angle other than ninety degrees.

**38.** The object display system of claim 37, wherein a top portion of said hook comprises a plurality of discontinuous contact arms disposed at a desired angle to each other.

**39.** The object display system of claim 34, wherein at least one of said plurality of hangers comprises:

a main body;

a hook coupled to said main body; and

an insertion clip adapted to receive at least a portion of said hook such that said hook and said main body maintain a non-coplanar relationship.

**40.** The object display system of claim 34, wherein at least one of said plurality of hangers comprises:

a main body;

a hook coupled to said main body; and

an insertion tube disposed vertically in said main body, said insertion tube adapted to receive at least a portion of said hook such that said hook and said main body maintain a non-coplanar relationship.

**41.** A hanger, comprising:

a main body disposed in a first plane; and

a swivel hook coupled to said main body such that said main body and said hook maintain a desired relationship with each other.

**42.** The hanger of claim 41, wherein said desired relationship is selected from the group consisting of a coplanar relationship and a non-coplanar relationship.

**43.** The hanger of claim 41, said hook adapted to couple with said main body such that upon being suspended from a display bar said first plane intersects a longitudinal axis of said display bar at an angle other than ninety degrees.

**44.** The hanger of claim 41, said hook adapted to couple with said main body such that upon being suspended from a display bar said first plane intersects a longitudinal axis of said display bar at an angle of ninety degrees.

**45.** The hanger of claim 41, wherein a cross-section of a portion of said hook coupled to said main body is non-circular.

**46.** The hanger of claim 41, wherein said main body comprises at least one hook receiving channel adapted to receive at least a portion of an engaging member of said hook to lock said hook in one of a plurality of predetermined positions such that said hook and said main body are non-coplanar.

**47.** The hanger of claim 41, wherein said main body comprises at least one hook receiving channel having a non-circular cross-section, said hook receiving channel operable to receive at least a portion of said hook to lock said hook in one of a plurality of positions such that said hook and said main body are non-coplanar.

**48.** The hanger of claim 41, wherein said main body comprises at least one hook receiving channel adapted to receive at least a portion of an engaging member of said hook to lock said hook in one of a plurality of predetermined positions such that said hook and said main body are coplanar.

**49.** The hanger of claim 41, wherein said main body comprises at least one hook receiving channel having a non-circular cross-section, said hook receiving channel operable to receive at least a portion of said hook to lock said hook in one of a plurality of positions such that said hook and said main body are coplanar.

**50.** An object display system, comprising:

a display bar; and

a plurality of hangers suspended from said display bar, each of said plurality of hangers comprising a main

body and a swivel hook coupled to said main body such that said swivel hook and said main body maintain a desired relationship with each other.

**51.** The object display system of claim 50, each of said plurality of hangers adapted to display an object of a plurality of objects at an angle other than ninety degrees with respect to said display bar such that at least a portion of a

front of each of said plurality of objects is visible simultaneously.

**52.** The object display system of claim 50, each of said plurality of hangers adapted to display an object of a plurality of objects at a ninety degree angle with respect to said display bar.

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