



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.08.2007 Bulletin 2007/35

(51) Int Cl.:
A47F 5/00 (2006.01)

(21) Application number: **07003795.7**

(22) Date of filing: **23.02.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(72) Inventors:
• **Chamberlain, Samuel R. III**
Frisco
TX 75035 (US)
• **Courtney, Christine A.**
Irving
TX 75063 (US)

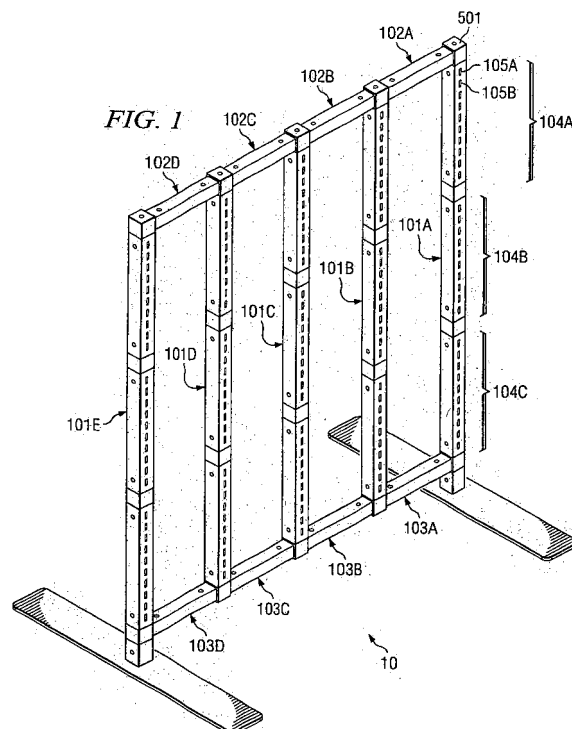
(30) Priority: **24.02.2006 US 361709**

(71) Applicant: **Exhibitgroup/Giltspur, a division of Viad Corp.**
Phoenix AZ 85077 (US)

(74) Representative: **Dehmel, Albrecht**
Dehmel & Bettenhausen
Patentanwälte,
Herzogspitalstrasse 11
80331 München (DE)

(54) **Rotatable connector for a display system**

(57) According to one embodiment, a method comprises coupling to a slotted tube (104A) a member (302) having a passage (301). The method further comprises aligning a passage of an arm (401) with the member's passage, and coupling a through-surface coupling mechanism (601) through the aligned passages, wherein the through-surface coupling mechanism forms an axis about which the arm can rotate. According to another embodiment, a system comprises a slotted frame (104A) comprising female slots. The system further comprises a member coupled to the slotted frame, the member comprising a first through-surface coupling portion. The system further comprising an arm (203) comprising a second through-surface coupling portion, and a through-surface coupling mechanism for coupling through the first through-surface coupling portion and the second through-surface coupling portion, thereby providing an axis about which the arm can rotate.



Description

[0001] The following description relates generally to display systems, such as display systems employed in retail stores for merchandising, and more particularly to coupling an arm to a slotted display such that the arm is rotatable (or pivots about an axis).

BACKGROUND OF THE INVENTION

[0002] Various types of hangers, hooks, shelving, etc. are commonly used in retail stores for displaying merchandise and/or information. Various types of support systems to which such hangers, hooks, brackets, shelving, etc. can be coupled to form a display are also known. For instance, peg boards, slotted displays (e.g., slotted standards, slotted tubing, etc.), and other types of supports (or "frames") are available for coupling hangers, etc. to. Merchandise and/or information can then be provided on the hangers, hooks, or other display mechanisms that are coupled to the support frame. As an example, slotted standards are commonly used for forming a support frame, where brackets for supporting shelves thereon are coupled to slots in the slotted standards.

[0003] Generally, the mechanisms coupled to the support frame have a fixed orientation relative to the support frame when so coupled. For instance, brackets for supporting shelves are generally coupled in a perpendicular orientation to a slotted standard. Similarly, hooks, hangers, and other merchandise display items that may be coupled to a support frame are generally fixedly oriented relative to the support frame.

[0004] Such fixed orientation is often disadvantageous. For instance, if the display mechanisms (e.g., hangers, brackets for supporting shelves, etc.) extend outward into the aisle of a store, they are prone to damage by accidental knocks from passing customers. Also, the merchandise being displayed thereby may be damaged or displaced by such knocks. Further, such display mechanisms may injure a shopper who knocks into them.

[0005] Moreover, the fixed orientation provides limited flexibility for a vendor to organize a display as may be desired. Particularly in retail merchandising units (RMUs), efficient utilization of space for displaying merchandise and information is very desirable. Many businesses use RMUs to establish an effective storefront through which they can conduct retail sales in public areas, such as shopping malls, theme parks, sports arenas, and a wide variety of other public venues. An RMU may, for example, be implemented as a kiosk or other structure. RMUs may be employed for a vendor (e.g., retailer) to market its merchandise to prospective customers and conduct sales transactions with customers. For instance, an RMU generally includes shelves (or other display mechanisms) for displaying the vendor's merchandise to prospective customers when the RMU is open for business. RMUs also generally include at least some amount of storage space for storing the vendor's inventory of mer-

chandise. Typically, RMUs further include a cash register and/or other equipment (e.g., computer, credit card processing equipment, etc.) for conducting point of sale (POS) transactions with customers. Thus, generally RMUs effectively provide a self-contained storefront for vendors, much like traditional retail stores.

[0006] RMUs often provide a relatively low-cost alternative for a vendor to obtain a storefront in a public area. That is, an RMU may be used by a vendor to establish a storefront in a public area (which may be a highly desirable area with high visibility and customer traffic, such as a busy shopping mall) with much less overhead than is associated with traditional retail stores. For instance, while RMUs do not provide the amount of retail space that is afforded by a traditional retail store, RMUs may be arranged in walkways (e.g., halls of shopping malls, etc.) or other available space. Traditional retail stores commonly have 1000 square feet of space (and much more in many instances), while RMUs generally consume from approximately 10 square feet to approximately 150 square feet. Because RMUs generally do not consume a large amount of space (as compared to traditional retail stores) and because the RMUs can often be placed in otherwise unused areas, RMUs may incur very economical rent and utility costs. Further, an owner of a given space, such as a shopping mall, may benefit by allowing RMUs to be arranged within the otherwise unused portions of such space to increase the offerings of goods/services within the space and to realize income from the rental of such RMUs which would not otherwise be realized from such unused portions of the space. Many types of businesses can be effectively run without requiring the space afforded by a traditional retail store, and may instead be capable of effectively displaying and conducting sales of their merchandise in an RMU. RMUs thus offer such businesses a relatively low-cost alternative for establishing a storefront in a desirable area.

[0007] Because of the relatively limited space provided by RMUs, it is often desirable to utilize the space available within the RMU in a most efficient manner for displaying merchandise and/or information. Thus, a fixed orientation of display mechanisms (such as brackets for supporting shelves, hangers, etc.) undesirably limit the vendors options as to how best to arrange the display for efficiently utilizing the available space.

BRIEF SUMMARY OF THE INVENTION

[0008] The present invention is directed to a system and method which provide a connector for enabling an arm to be rotatably connected to a slotted frame for forming a display. According to one embodiment, a method of forming a display comprises coupling to a slotted tube a member having a passage. The method further comprises aligning a passage of an arm with the member's passage, and coupling a through-surface coupling mechanism through the aligned passages, wherein the through-surface coupling mechanism forms an axis

about which the arm can rotate. In certain embodiments, the member is a bracket comprising a male connector for coupling with a female slot of the slotted tube. In other embodiments, the member is an end cap that caps an end of the slotted tube. The through-surface coupling mechanism may be, as examples, a nut, bolt, pin, rod, or any combination thereof.

[0009] In certain embodiments, the member is a bracket that is capable of being removably connected to any of a plurality of different slots in the slotted tube. Thus, the bracket can be connected to slotted tube at a desired position, and the arm coupled to the bracket can be rotated about the axis formed by the through-surface coupling mechanism to a desired orientation relative to the slotted tube. That is, the arm is not restricted to a fixed position relative to the slotted tube. For instance, the arm is not required to be positioned perpendicular to the slots of the slotted tube. Rather, the arm can be rotated about the axis to a desired position, which may be advantageous for forming a display within given space constraints (such as within the space constraints of a retail merchandising unit), for example.

[0010] According to another embodiment, a system comprises a slotted frame comprising female slots. The system further comprises a member coupled to the slotted frame, wherein the member comprises a first through-surface coupling portion. The system further comprises an arm comprising a second through-surface coupling portion, and a through-surface coupling mechanism for coupling through the first through-surface coupling portion and the second through-surface coupling portion, thereby providing an axis about which the arm can rotate. In certain embodiments, the member comprises a bracket having a male connector portion for mating with at least one of the female slots of the slotted frame. In other embodiments, the member comprises an end cap that caps a column of the slotted frame.

[0011] Embodiments of the present invention provide an arm that is rotatably connected to a slotted display frame, which advantageously provides a vendor flexibility as to how best to orient the arm to most effectively utilize available display space. This is particularly advantageous when employed within a RMU in which display space is relatively limited.

[0012] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel

features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] For a more complete understanding of the present invention, reference is now made to the following descriptions taken in conjunction with the accompanying drawing, in which:

FIGURE 1 shows an exemplary system to which embodiments of a rotatable arm described further herein may be coupled;

FIGURE 2 shows an exploded view of an exemplary arm according to an embodiment of the present invention;

FIGURE 3 shows an exploded view of an exemplary bracket according to an embodiment of the present invention;

FIGURE 4 shows an example assembly of the bracket of FIGURE 3 coupled to the slotted frame of FIGURE 1 and to the rotatable arm of FIGURE 2;

FIGURE 5 shows an exemplary end cap for a slotted frame to which the rotatable arm of FIGURE 2 may be coupled;

FIGURE 6 shows an exemplary assembly of the end cap of FIGURE 5 coupled to the slotted frame of FIGURE 1 and to the rotatable arm of FIGURE 2;

FIGURE 7 shows an example of a slotted frame system having rotatable arms coupled thereto being employed in a Retail Merchandising Unit (RMU) according to one embodiment of the present invention; and FIGURE 8 shows an exemplary method for forming a display (e.g., for displaying merchandise) according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0014] FIGURE 1 shows an exemplary system 10 to which embodiments of a rotatable arm described further herein may be coupled. System 10 comprises a slotted frame with columns 101A-101E that each have female slots. For instance, column 101A comprises female slots, such as slots 105A and 105B specifically labeled in FIGURE 1. In this example, each column comprises at least one row of female slots. More specifically, in this example, each column has a row of female slots that are vertically aligned. System 10 also comprises upper horizontal portions 102A-102D that interconnect between the columns 101A-101E, as shown. Similarly, lower horizontal portions 103A-103D interconnect between the col-

umns 101A-101E, as shown.

[0015] System 10 may be a modular display support system, such as that described in concurrently filed and commonly assigned U.S. Patent Application Serial No. 11/361,674 (Attorney Docket No. 66477-P003US-10601572) titled "MODULAR RETAIL MERCHANDISE DISPLAY SYSTEM", the disclosure of which is hereby incorporated herein by reference. For instance, system 10 may comprise various modular parts that are coupled together, such as vertical portions 104A-104C that interconnect to form column 101A. Each of the columns may be capped with a cap component having a base plate 501, such as described further below with FIGURE 5. System 10 may be referred to herein as a support or a "frame". The terms "support" and "frame" are intended to encompass any structure to which display mechanisms (e.g., brackets, arms, hangers, hooks, etc.) can be coupled.

[0016] FIGURE 2 shows an exploded view of an exemplary arm 20 according to an embodiment of the present invention. Arm 20 comprises an elongated arm portion 203 to which a through-surface coupling portion (or "passage") 201 is coupled (e.g., welded). Through-surface coupling portion 201 comprises a hole 204 therethrough. For instance, in this example, through-surface coupling portion 201 is a hollow tube. In this exemplary embodiment, through-surface coupling portion 201 is coupled to one end of elongated arm portion 203.

[0017] Further, in this example, a second through-surface coupling portion 202 is coupled (e.g., welded) to an opposite end of elongated arm portion 203 from the end to which through-surface coupling portion 201 is coupled. Through-surface coupling portion 202 comprises a hole 205 therethrough. For instance, in this example, through-surface coupling portion 202 is a hollow tube. Another mechanism, such as a shelf for displaying merchandise, can therefore be coupled to arm 20 via through-surface coupling portion 205, such as discussed further below with the exemplary display system shown in FIGURE 7. In alternative embodiments, some other element (or no element at all) in addition to or instead of through-surface coupling portion 202 may be provided.

[0018] In this example, elongated arm portion 203 is thicker in height adjacent through-surface coupling portion 201 than it is adjacent through-surface coupling portion 202. For instance, height H_1 adjacent through-surface coupling portion 201 is larger than height H_2 adjacent through-surface coupling portion 202. Of course, in other embodiments, elongated arm portion 203 may be implemented in any configuration, including one having constant height from end-to-end and one in which H_2 is larger than H_1 as examples.

[0019] While an exemplary arm 20 is shown in FIGURE 2, the term "arm" as used herein is not limited to such a configuration. Rather, an "arm" (except where expressly specified otherwise) refers generally to any member that comprises a through-surface coupling portion for being rotatably coupled to a member (e.g., bracket, end cap,

etc.) that is coupled to a display frame, such as display frame 10 of FIGURE 1. Thus, an arm may be any type of display support mechanism, for instance, such as a hanger, hook, shelving support, etc. for supporting the display of a vendor's merchandise or information.

[0020] FIGURE 3 shows an exploded view of an exemplary bracket 30 according to an embodiment of the present invention. Bracket 30 comprises coupling portion 302 that includes male connectors 303A and 303B for coupling with female slots, such as female slots 105A and 105B of frame system 10 of FIGURE 1. Bracket 30 also comprises a through-surface coupling portion (or "passage") 301 coupled (e.g., welded) to coupling portion 302. Through-surface coupling portion 301 comprises a hole 304 therethrough. For instance, in this example, through-surface coupling portion 301 is a hollow tube. In this exemplary embodiment, through-surface coupling portion 201 is coupled to an end of coupling portion 302 opposite male connectors 303A and 303B. While exemplary male connectors 303A and 303B are shown in this example, in other embodiments other types of male connectors instead of or in addition to male connectors 303A and 303B may be employed on bracket 30.

[0021] FIGURE 4 shows an example assembly 40 of bracket 30 of FIGURE 3 coupled to a slotted frame 10 of FIGURE 1 and to rotatable arm 20 of FIGURE 2. As shown, male connectors 303A and 303B couple to female slots 105A and 105B, respectively, of slotted frame portion 104A. Male connectors 303A and 303B couple to female slots 105A and 105B in a manner common in the art to provide a removable coupling of bracket 30 to slotted frame portion 104A. Through-surface coupling portion 201 of arm 20 is aligned with through-surface coupling portion 301 of bracket 30. A through-surface coupling mechanism 401 (e.g., bolt) penetrates through the aligned through-surface coupling portions 201 and 301, thereby coupling arm 20 to bracket 30. In this manner, through-surface coupling mechanism 401 provides an axis about which arm 20 can rotate (or pivot). Thus, bracket 30 remains positionally fixed to the slotted frame portion 104A, while elongated arm portion 203 can be rotated about an axis formed by through-surface coupling mechanism 401 to a desired position. As such, elongated arm portion 203 is not limited to being disposed perpendicular to slotted frame portion 104A, but can instead be rotated to another desired position.

[0022] FIGURE 5 shows an exemplary end cap 50 for a slotted frame. For instance, as shown in FIGURE 1, such an end cap may be employed for capping each of columns 101A-101E. The exemplary cap 50 comprises an "M"-shaped support portion 502 that is coupled to a base plate 501, which includes a through-surface coupling portion (or "passage") 503, such as a hole. Each slotted frame portion, such as slotted frame portions 104A-104C comprise hollow tubing with a row of slots cut (e.g., lasered) therein on at least one side. In assembling a slotted frame 10, an end cap 50 caps the top of each column 101A-101E. For instance, M-shaped sup-

port portion 502 inserts into the hollow tubing of the top slotted frame portion of a given column, such as top slotted frame portion 104A of column 101A of FIGURE 1.

[0023] FIGURE 6 shows an exemplary assembly 60 of end cap 50 of FIGURE 5 coupled to a slotted frame 10 of FIGURE 1 and to rotatable arm 20 of FIGURE 2. As shown, M-shaped support portion 502 of end cap 50 is inserted into the hollow tubing of slotted frame portion 104A. Through-surface coupling portion 201 of arm 20 is aligned with through-surface coupling portion 503 of end cap 50. A through-surface coupling mechanism 601 (e.g., bolt) penetrates through the aligned through-surface coupling portions 201 and 503, thereby coupling arm 20 to end cap 50. In this manner, through-surface coupling mechanism 601 provides an axis about which arm 20 can rotate (or pivot). Thus, end cap 50 remains positionally fixed to the top of slotted frame portion 104A, while elongated arm portion 203 can be rotated about an axis formed by through-surface coupling mechanism 601 to a desired position.

[0024] FIGURE 7 shows an example of a slotted frame system 10 having rotatable arms 20A and 20B coupled thereto being employed in a Retail Merchandising Unit (RMU) 70. As shown in this example, a vendor has connected various slotted tubing portions together to form a display frame 10A. Again, the exemplary modular display support system described in concurrently filed and commonly assigned U.S. Patent Application Serial No. 11/361,674 (Attorney Docket No. 66477-P003US-10601572) titled "MODULAR RETAIL MERCHANDISE DISPLAY SYSTEM" may be used to form such a display frame 10A. The display frame 10A is arranged in a RMU 70 (e.g., on a countertop 702 of RMU 70) in this example, and thus the vendor desires to configure the display frame for most efficiently utilizing the relatively limited space available in such RMU 70. While display frame 10A is shown as arranged on countertop 702 in this example, it may be arranged on a shelf or other suitable structure in other implementations.

[0025] In this example, a first arm 20A is coupled to a slotted tube portion 71 via a bracket, such as bracket 30 of FIGURE 3. That is, first arm 20A is rotatably coupled to bracket 30, which comprises male connectors that are coupled to female slots of slotted tube portion 71. First arm 20A is pivoted about the axis formed by the through-surface coupling mechanism that couples the arm 20A to the bracket 30 to a desired orientation for effectively utilizing the display space. In this example, a shelf 703 is coupled to the distal end of arm 20A via through-surface coupling portion 205A. Merchandise (e.g., a purse in this example) 704 is arranged on the shelf 703.

[0026] Also, in the example of FIGURE 7, a second arm 20B is coupled to a slotted tube portion 72 via an end cap, such as end cap 50 of FIGURE 5. That is, second arm 20B is rotatably coupled to end cap 50, which caps the slotted tube portion 72. Second arm 20B is pivoted about the axis formed by the through-surface coupling mechanism that couples the arm 20B to the end

cap 50 to a desired orientation for effectively utilizing the display space. In this example, a shelf 705 is coupled to the distal end of arm 20B via through-surface coupling portion 205B. Merchandise (e.g., a purse in this example) 706 is arranged on the shelf 705.

[0027] In certain embodiments, the arms may be locked to a desired position. For instance, the through-surface coupling mechanism (e.g., bolt), such as through-surface coupling mechanism 401 of FIGURE 4 or through-surface coupling mechanism 601 of FIGURE 6, may be loosened to allow the arm to be rotated to a desired position, and then such through-surface coupling mechanism 401, 601 may be tightened to hold the arm at the position. In other embodiments, any other suitable locking mechanism may be employed to positionally lock the arm at a desired location.

[0028] FIGURE 8 shows an exemplary method for forming a display (e.g., for displaying merchandise in an RMU, such as RMU 70 of FIGURE 7) according to an embodiment of the present invention. In block 81, a member having a passage is coupled to a slotted tube. For instance, such a member may be bracket 30 of FIGURE 3 or end cap 50 of FIGURE 5, as examples. For example, bracket 30 of FIGURE 3 having passage 304 may be coupled, via male connectors 303A and 303B, with female slots (e.g., female slots 105A and 105B) of the slotted tube portion 104A of system 10 of FIGURE 1. As another example, end cap 50 may be coupled to the top of slotted tube portion 104A, as shown in FIGURE 6. In block 82 of FIGURE 8, a passage of an arm is aligned with the member's passage. For instance, passage 204 of arm 20 of FIGURE 2 may be aligned with passage 304 of bracket 30 or with passage 503 of end cap 50, as examples. In block 83, a through-surface coupling mechanism is coupled through the aligned passages, wherein the through-surface coupling mechanism forms an axis about which the arm can rotate. For instance, through-surface coupling mechanism 401 is coupled through the aligned passages 204 and 304 in forming assembly 40 of FIGURE 4. As another example, through-surface coupling mechanism 601 is coupled through the aligned passages 204 and 503 in forming assembly 60 of FIGURE 6.

[0029] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be

utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.

PREFERRED EMBODIMENTS

[0030] The present invention is further characterized by the following 21 preferred embodiments.

1. A method comprising:

coupling to a slotted tube a member having a passage;
aligning a passage of an arm with the member's passage; and
coupling a through-surface coupling mechanism through the aligned passages, wherein the through-surface coupling mechanism forms an axis about which the arm can rotate.

2. The method of embodiment 1 wherein the member is a bracket comprising a male connector for coupling with a female slot of the slotted tube.

3. The method of embodiment 2 wherein the passage of the bracket is on an end of the bracket opposite the male connector.

4. The method of embodiment 1 wherein the through-surface coupling mechanism comprises at least one selected from the group consisting of: nut, bolt, pin, rod, and any combination of the foregoing.

5. The method of embodiment 1 wherein the coupling the member to the slotted tube comprises:

coupling a male connector of a bracket to the slotted tube.

6. The method of embodiment 5 further comprising:

selecting any one of a plurality of different slots in the slotted tube to which the male connector of the bracket is to be coupled.

7. The method of embodiment 1 wherein the coupling the member to the slotted tube comprises:

coupling an end cap to an end of the slotted tube.

8. The method of embodiment 1 further comprising:

arranging the slotted tube in a retail merchandising unit.

9. The method of embodiment 1 further comprising:

connecting a plurality of slotted tube portions together to form the slotted tube.

10. A system comprising:

a slotted frame comprising female slots;
a member coupled to the slotted frame, the member comprising a first through-surface coupling portion;
an arm comprising a second through-surface coupling portion; and
a through-surface coupling mechanism for coupling through the first through-surface coupling portion and the second through-surface coupling portion, thereby providing an axis about which the arm can rotate.

11. The system of embodiment 10 wherein the member comprises:

a bracket comprising a male connector portion for mating with at least one of the female slots of the slotted frame.

12. The system of embodiment 10 wherein the member comprises an end cap that caps a column of the slotted frame.

13. The system of embodiment 12 wherein the end cap comprises an M-shaped portion that inserts into the column of the slotted frame.

14. The system of embodiment 10 wherein the through-surface coupling mechanism comprises at least one selected from the group consisting of: nut, bolt, pin, rod, and any combination of the foregoing.

15. A system comprising:

a slotted frame comprising female slots;
a bracket comprising

a) a male connector portion for mating with at least one of the female slots of the slotted frame, and
b) a first through-surface coupling portion;

an arm comprising a second through-surface coupling portion; and
a through-surface coupling mechanism for coupling through the first through-surface coupling portion and the second through-surface coupling portion, thereby providing an axis about which the arm can rotate.

16. The system of embodiment 15 further comprising:

the second through-surface coupling portion being aligned with the first through-surface coupling portion.

17. The system of embodiment 15 wherein the slotted frame comprises a slotted standard.

18. The system of embodiment 15 wherein the slotted frame comprises a slotted tube.

19. The system of embodiment 15 wherein the male connector portion can be selectively mated with any of a plurality of the female slots.

20. The system of embodiment 19 wherein the male connector portion enables the bracket to be removably mated to the slotted frame.

21. The system of embodiment 15 wherein the slotted frame comprises:

at least one row of female slots.

Claims

1. A method comprising:

coupling to a slotted tube a member having a passage;
aligning a passage of an arm with the member's passage; and
coupling a through-surface coupling mechanism through the aligned passages, wherein the through-surface coupling mechanism forms an axis about which the arm can rotate.

2. The method of claim 1 wherein the through-surface coupling mechanism comprises at least one selected from the group consisting of: nut, bolt, pin, rod, and any combination of the foregoing.

3. The method of claim 1 wherein the coupling the member to the slotted tube comprises:

coupling a male connector of a bracket to the slotted tube.

4. The method of claim 3 further comprising:

selecting any one of a plurality of different slots in the slotted tube to which the male connector of the bracket is to be coupled.

5. The method of claim 1 further comprising:

arranging the slotted tube in a retail merchandising unit.

6. A system comprising:

a slotted frame comprising female slots;
a member coupled to the slotted frame, the member comprising a first through-surface coupling portion;
an arm comprising a second through-surface coupling portion; and
a through-surface coupling mechanism for cou-

pling through the first through-surface coupling portion and the second through-surface coupling portion, thereby providing an axis about which the arm can rotate.

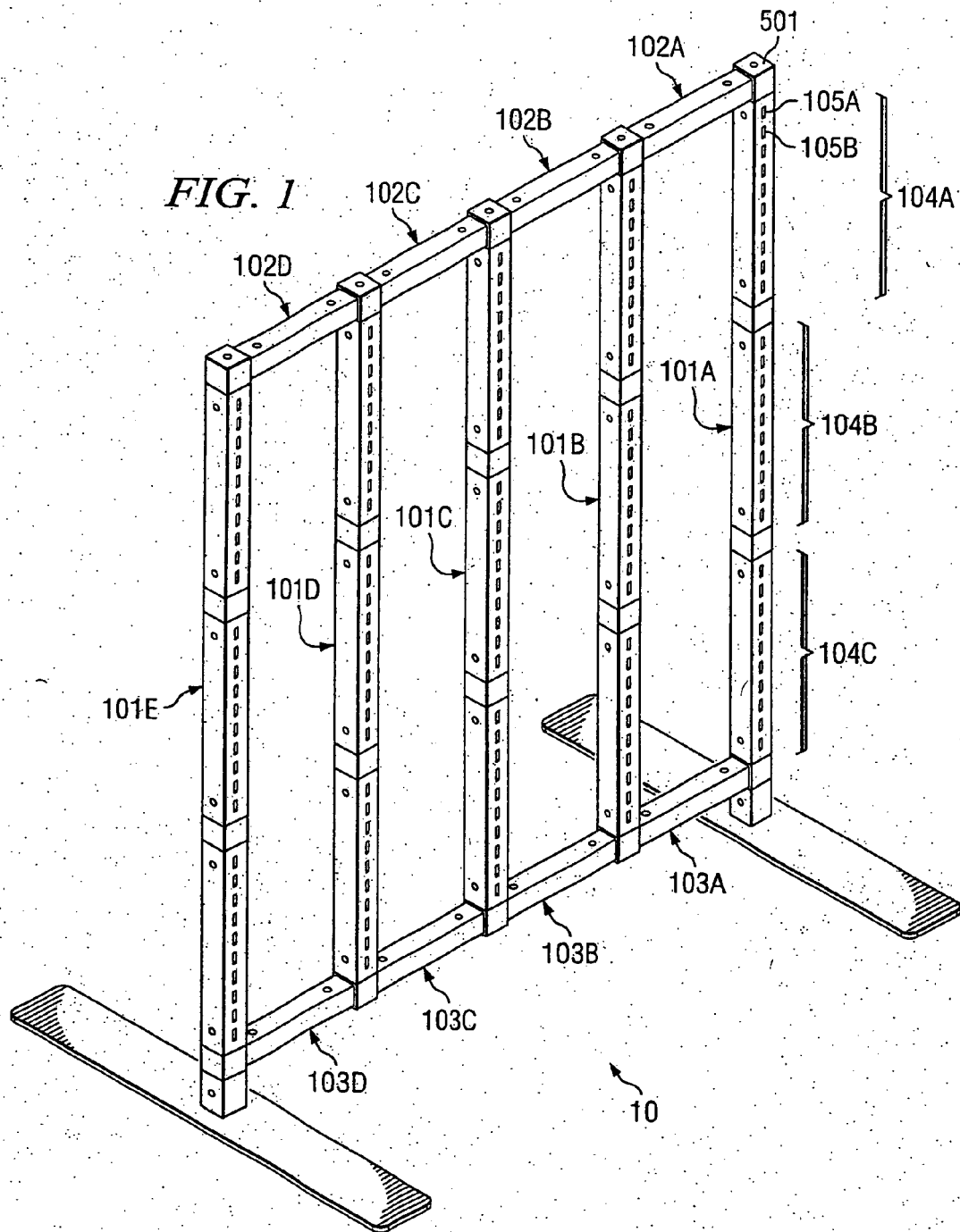
7. The system of claim 6 wherein the member comprises:

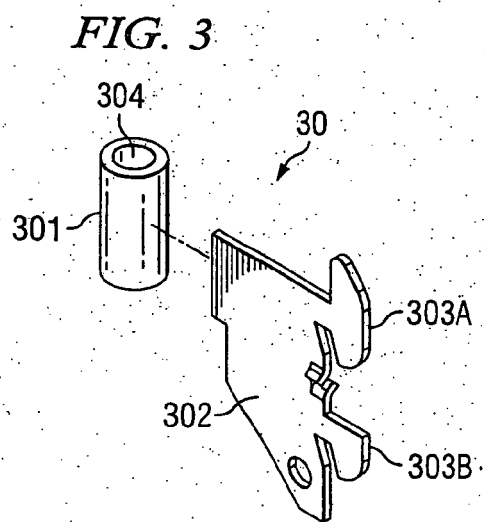
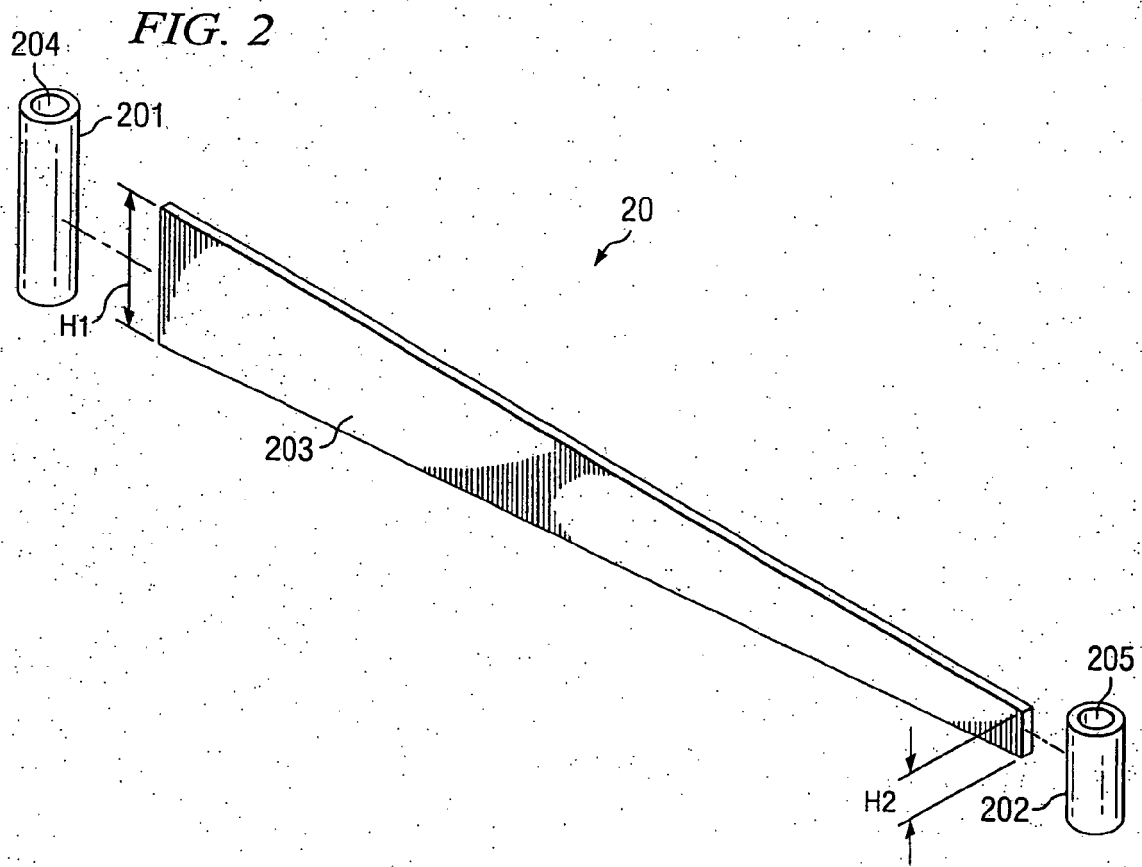
a bracket comprising a male connector portion for mating with at least one of the female slots of the slotted frame.

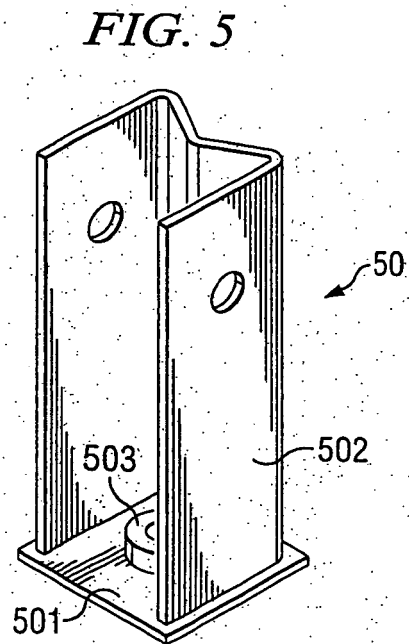
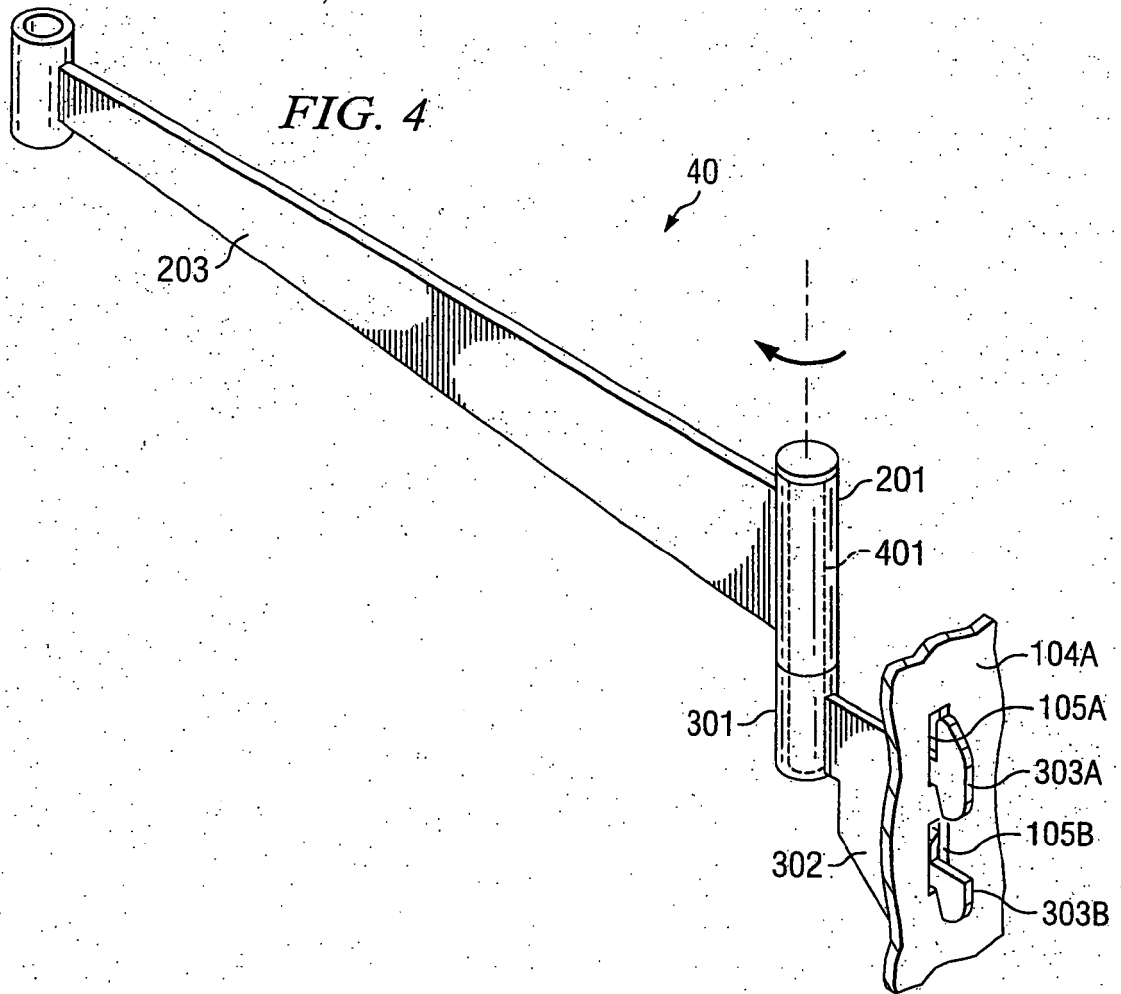
8. The system of claim 6 wherein the member comprises an end cap that caps a column of the slotted frame.

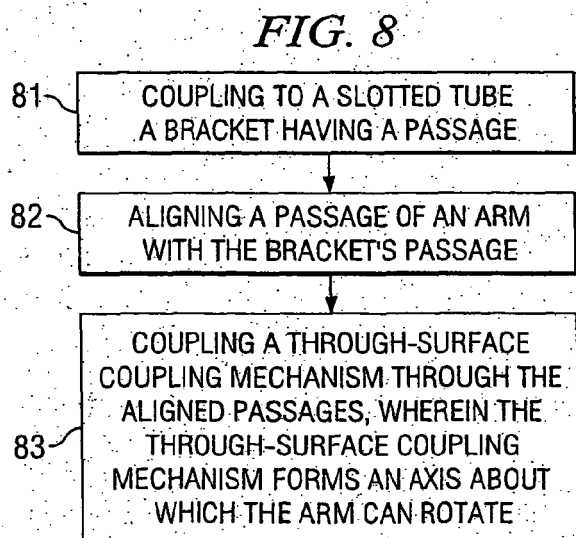
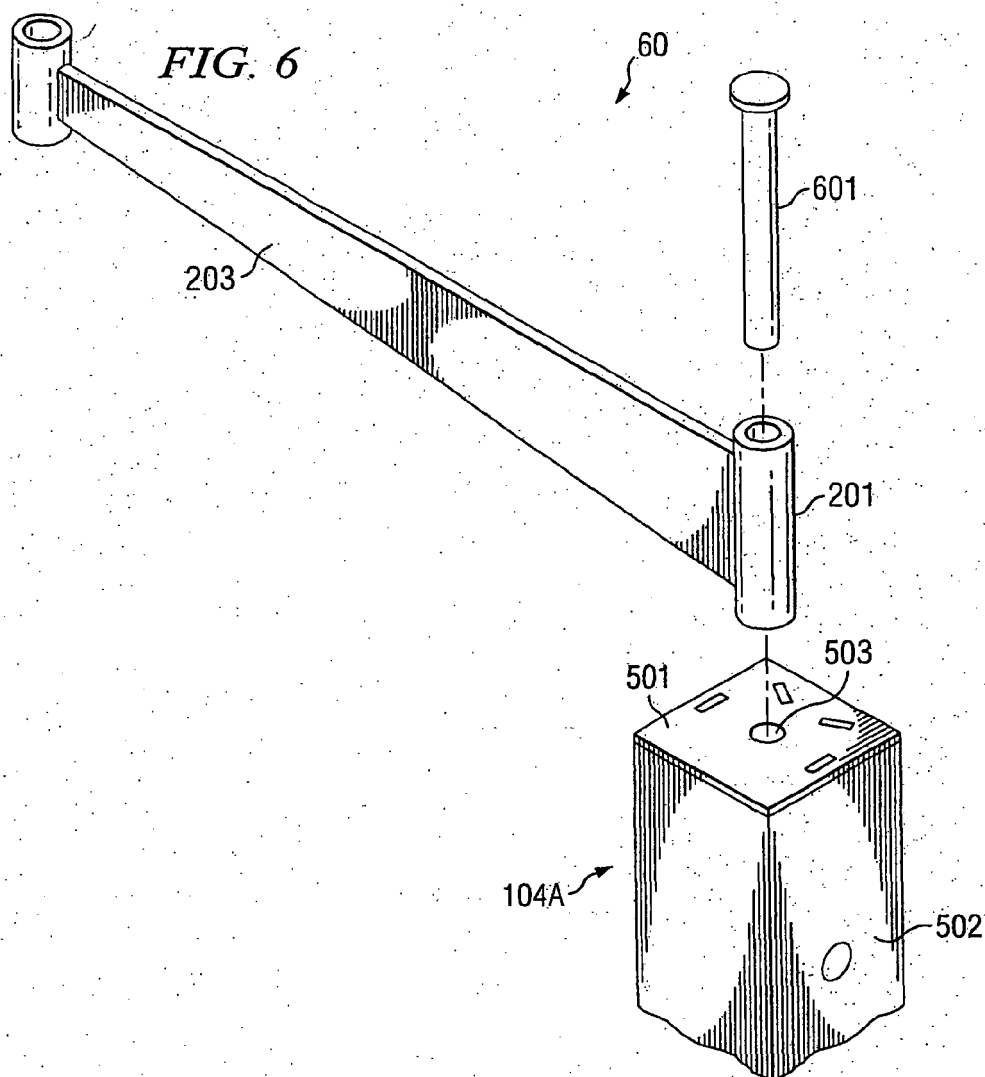
9. The system of claim 8 wherein the end cap comprises an M-shaped portion that inserts into the column of the slotted frame.

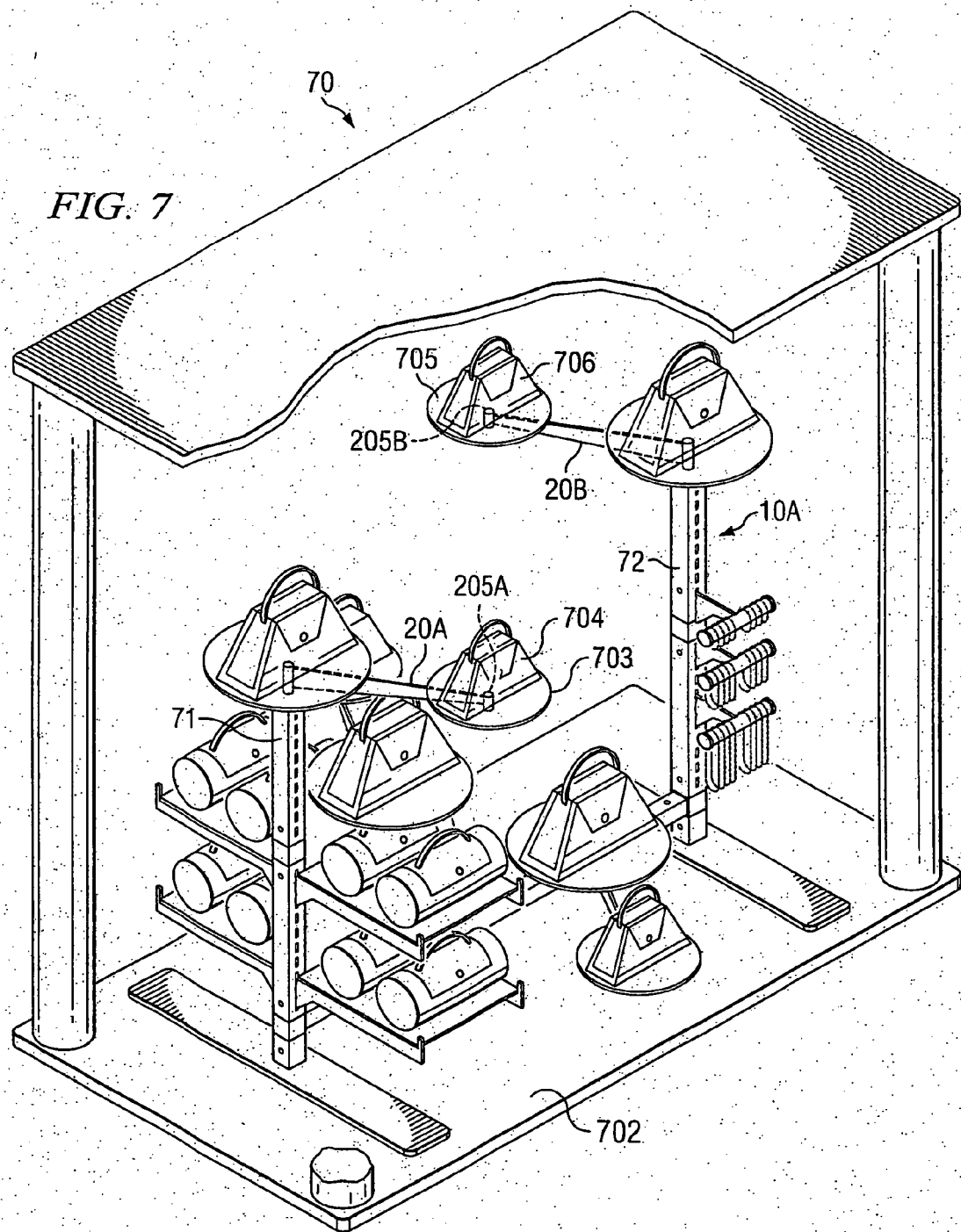
10. The system of claim 6 wherein the through-surface coupling mechanism comprises at least one selected from the group consisting of: nut, bolt, pin, rod, and any combination of the foregoing.











REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 361674 A [0015] [0024]
- US 10601572 B [0015] [0024]