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(54) **PRODUCT MANAGEMENT DISPLAY SYSTEM**

PRODUKTVERWALTUNGSANZEIGESYSTEM

SYSTÈME DE GESTION DE PRÉSENTATION DE PRODUIT

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Description

FIELD OF THE INVENTION

[0001] The invention relates generally to a product management display system for use in merchandising product.

BACKGROUND OF THE INVENTION

[0002] It is known that retail and wholesale stores, such as convenience stores, drug stores, grocery stores, discount stores, and the like, require a large amount of shelving both to store product and to display the product to consumers. In displaying product, it is desirable for the product on the shelves to be situated toward the front of the shelf so that the product is visible and accessible to consumers. In the case of coolers or refrigerators that are used to store and display such products as soft drinks, energy drinks, bottled water, and other bottled or canned beverages, it is desirable for these products to also be situated toward the front of the shelf and visible and accessible to the consumers.

[0003] To accomplish this placement of product, known systems may include inclined trays or floors that through gravity will cause the product to move toward the front of the shelf. Many of these systems include floors or shelves made of a plastic material such as polypropylene that due its low coefficient of friction permit the product to easily slide along the inclined floor or surface. However, over time, these surfaces can become obstructed with debris or sticky substances that inhibit the product from properly sliding, sometimes causing several products to tip over thus blocking additional product from moving to the front of the shelf.

[0004] Other systems include the use of a pusher system to push the product toward the front of the shelf as the product at the front of the shelf is removed. The known pusher systems are typically mounted to a track and include a pusher paddle and a coiled spring to urge the product forward. Occasionally, as the system is used, and over time, the track becomes obstructed with dirt or sticky materials that hinder the proper operation of the pusher system in the track. In addition, depending on the size, shape and weight of the product to be merchandised, the known pusher paddles may occasionally tip or bend backwards, thereby causing a binding of the pusher mechanism in the track. In those situations, the pusher mechanism may not properly push product toward the front of the shelf.

[0005] It is desirable to provide a trackless pusher system that works with gravity-fed merchandise systems (*i.e.*, inclined shelves or trays) and non-gravity-fed merchandise systems.

[0006] US 2008/129161 A1 discloses a merchandising system comprising a shelf, on which items can be placed, and a front item stop. The front item stop comprises a front face and can have a designated portion on which a

label can be placed. US 2001/002658 A1 discloses a merchandising display track device of multiple-piece construction.

5 SUMMARY OF THE INVENTION

[0007] The invention provides a product management display system a tray having a front rounded portion and a surface on which product can be placed, the tray defining a plurality of apertures in the surface; a lip extending upward from the front rounded portion of the tray; a front shelf extending forward from the lip; and a front wall having a top wall portion, a bottom wall portion, and two side leg portions, wherein the top wall portion, bottom wall portion, and two side leg portions form a wall aperture in the front wall, wherein the front wall includes a plurality of projections configured to engage with the plurality of apertures on the surface of the tray.

[0008] In an embodiment, the product management display system further comprises two wall portions, each of the two wall portions extending from an opposite end of the lip, wherein a graphic pocket is formed by the bottom wall portion, the lip, and the two wall portions.

[0009] In an embodiment, the product management display system further comprises a plurality of dividers attached to the tray, the plurality of dividers configured to separate product into one or more rows.

[0010] In an embodiment, the product management display system further comprises a pusher mechanism configured to slide across at least a portion of the surface of the tray the pusher mechanism mounted to and held onto the tray only by a coiled spring.

[0011] In an embodiment, the surface of the tray defines a plurality of openings to permit debris or other materials to pass through.

[0012] In an embodiment, the product management display system further comprises a plurality of trays, each tray having a front rounded portion and a surface on which product can be placed, the tray defining a plurality of apertures in the surface, each of the plurality of trays having two sides; a lip extending upward from the front rounded portion of each of the plurality of trays; a front shelf extending forward from the lip of each of the plurality of trays; a plurality of dividers, each of the plurality of trays having one divider extending upwardly from each of the two sides; and a plurality of front walls, each of the front walls having a top wall portion, a bottom wall portion, and two side leg portions, wherein the top wall portion, bottom wall portion, and two side leg portions, form a wall aperture in the front wall, wherein each of the plurality of front walls includes a plurality of projections configured to engage with the plurality of apertures on the surface of one of the plurality of trays.

55 BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

FIG. 1 depicts an isometric exploded view of an example of a product management display system, not according to the invention.

FIG. 2 depicts an isometric view of an example pusher mechanism mounted to an example tray or product channel, not according to the invention. 5

FIG. 3 depicts another isometric view of the system of FIG. 2 with product placed in the system. 10

FIG. 4 depicts another isometric view of the system of FIG. 2 with multiple products placed in the system.

FIG. 5 depicts an isometric rear view of the system of FIG. 4. 15

FIG. 6 depicts an alternative example of a tray or product channel, not according to the invention. 20

FIG. 7 depicts an example tip for an end of a coiled spring that may be used with an example product management display system, not according to the invention. 25

FIG. 8 depicts the example tip of FIG. 7 being mounted to a surface of a tray or product channel.

FIG. 9 depicts the example tip of FIG. 7 being mounted to an end of a coiled spring. 30

FIG. 10 depicts the example tip of FIG. 7 mounted to an end of a coiled spring.

FIG. 11 depicts an isometric view of an alternative example of a product management display system, not according to the invention. 35

FIG. 12 depicts another isometric view of the system of FIG. 11. 40

FIG. 13 depicts a front view of the system of FIG. 11.

FIG. 14 depicts a top view of the system of FIG. 11. 45

FIG. 15 depicts a rear view of the system of FIG. 11.

FIG. 16 depicts an isometric view of an adaptor, not according to the invention. 50

FIG. 17 depicts a front view of the adaptor of FIG. 16.

FIG. 18 depicts an example installation of the adaptor of FIG. 16, not according to the invention. 55

FIG. 19 depicts an isometric view of an installed adaptor, not according to the invention.

FIG. 20 depicts a front view of an installed adaptor, not according to the invention.

FIG. 21 depicts an isometric view of an alternative example of a product management display system, not according to the invention.

FIG. 22 depicts an isometric bottom view of an example mounting member that may be used to mount the end of a coiled spring to a floor of an example display system, not according to the invention.

FIG. 23 depicts an isometric top view of the example mounting member of FIG. 22.

FIG. 24 depicts the example mounting member of FIG. 22 mounted to the end of a coiled spring with the coiled spring mounted to an example pusher paddle.

FIG. 25 depicts another view of the example mounting member of FIG. 22 mounted to the end of a coiled spring with the coiled spring mounted to an example pusher paddle.

FIG. 26 depicts the example mounting member of FIG. 22 with attached coiled spring being mounted to a floor of an example system.

FIG. 27 depicts the example mounting member of FIG. 22 installed on a floor of an example system.

FIG. 28 depicts an isometric view of an alternative example of a product management display system, not according to the invention.

FIG. 29 depicts a close-up isometric view of a tray of the example of FIG. 28.

FIG. 29A depicts a cross-sectional view of the example of FIG. 28 illustrating a first securing method.

FIG. 29B depicts a cross-sectional view of the example of FIG. 28 illustrating a second securing method.

FIG. 30 depicts a close-up isometric view of the example of FIG. 28 illustrating a rivet attaching a spring to a tray.

FIG. 31 depicts an isometric view of the example of FIG. 28 being assembled in a preexisting wire shelf.

FIG. 32 depicts an isometric view of the example of FIG. 28 assembled in a preexisting wire shelf.

FIG. 33 depicts an isometric view of an example of the display system.

FIG. 34 depicts an isometric view of an example of the display system.

FIG. 35 depicts an isometric view of an example of an adapter.

FIG. 36 depicts an isometric view of an example of a retainer.

FIG. 37 depicts a side view of an example of a display system, not according to the invention.

FIG. 38 depicts an isometric view of an example a display system, not according to the invention.

FIG. 39 depicts an isometric view of an example of a display system, not according to the invention.

FIG. 40 depicts an isometric view of an example of a display system, not according to the invention.

FIG. 41A depicts a sectional side view of an example of a divider, not according to the invention.

FIG. 41B depicts a front view of an example of a display system, not according to the invention.

FIG. 41C depicts a close up view of a section of FIG. 41B.

FIG. 41D depicts a front view of an example of a divider, not according to the invention.

FIG. 42 depicts an isometric view of an example of a display system, not according to the invention.

FIG. 43 depicts an isometric view of an example of a display system, not according to the invention.

FIG. 44 depicts an isometric view of an example of a product management display system, not according to the invention.

FIG. 45 depicts another isometric view of an example of a product management display system with product in the system, not according to the invention.

FIG. 46 depicts a top view of another example of a product management display system with product in the system, not according to the invention.

FIG. 47 depicts an isometric-rear view of an example of a product management display system with product in the system, not according to the invention.

FIG. 48 depicts an isometric view of an example of a pusher mechanism mounted to a divider, not according to the invention.

FIG. 49 depicts another isometric view of an example divider and pusher mechanism being assembled to a product management display system, not according to the invention.

FIG. 50 depicts an isometric view of yet another example of a product management display system.

FIG. 51 depicts another isometric view of the example product management display system of FIG. 50 without product.

FIG. 52 depicts an exploded isometric view of the example product management display system of FIG. 50.

FIG. 53 depicts an isometric view of yet another example of a product management display system, not according to the invention.

FIG. 54 depicts an isometric view of an example attachment of the pusher spring to a shelf of the example product management display system of FIG. 53.

FIG. 55 depicts an isometric view of an example attachment of the pusher spring to a shelf of the example product management display system of FIG. 53.

FIG. 56 depicts an isometric view of an example attachment of the pusher spring to a shelf of the example product management display system of FIG. 53.

FIG. 57 depicts an isometric view of an example attachment of the pusher spring to a shelf of the example product management display system of FIG. 53.

FIG. 58 depicts an isometric view of an exemplary embodiment of a product management display system and aspects thereof.

FIG. 59 depicts first, second and third isometric views of embodiments of the product management display system of FIG. 58.

FIG. 60 depicts an isometric view of an embodiment of the product management display system of FIG. 58.

[0014] Before embodiments of the invention are explained in detail, it is to be understood that the scope of the invention is limited by the scope of the appended claims. Also, it is to be understood that the phraseology and terminology used herein are for the purpose of description of specific embodiments. The use of "including"

and "comprising" and variations thereof is meant to encompass at least the items listed thereafter. Further, the use of the term "mount," "mounted" or "mounting" is meant to broadly include any technique or method of mounting, attaching, joining or coupling one part to another, whether directly or indirectly.

DETAILED DESCRIPTION

[0015] Referring to the Figures wherein like numerals indicate like elements, there is depicted in FIG. 1 an isometric exploded view of an example merchandise system. Example merchandise system 10 includes a product dispensing tray 12 in which is mounted an example trackless pusher mechanism 14. As described in more detail below, the pusher mechanism 14 will fit in the tray 12 and will slide along the surface of the tray without the use of tracks, rails, or guides typically used to hold a conventional pusher mechanism to the tray or floor of the tray. The pusher mechanism defines a pusher paddle and a pusher floor that extends forward of the pusher paddle. A coiled spring may extend across the pusher floor and operatively connect to the tray at a forward position on the tray. Product to be merchandised may be placed in the tray in front of the pusher paddle and may sit on the pusher floor as well as the coiled spring. With this configuration, the weight of the product will prevent the pusher paddle from tipping to ensure proper pushing of the product. In addition, the problems associated with debris or sticky materials hindering the effectiveness of known pusher systems that use tracks, rails or guides have been eliminated.

[0016] The example tray 12 may define a surface 16 and one or more dividing panels or dividers 18 to separate the tray into numerous rows for placement of product. In an alternative example, the tray 12 may be a shelf or any other surface on which products may be placed for merchandising. The surface 16 may be a solid surface or a surface defining a plurality of spaced-apart apertures 20 separated by a plurality of support ribs 22. The apertures 20 and ribs 22 provide a surface that permits the slidable movement of product placed on this surface and also permits liquids and dirt to pass through the apertures 20 so that they do not collect on the surface 16. The surface 16 may be made of any suitable material that permits the slidable movement of product on the surface 16. Other surface or floor configurations are known and may be used.

[0017] As depicted in FIGS. 9 & 10, the surface 16 may define a rounded end portion 24 that includes a notch or cut-out portion 26. The end portion 24 may be rounded to match the shape of the product that is placed on the tray. For example, the depicted end portion 24 is rounded or defines a semi-circular shape to match the contour of a bottle or can that may be placed in the tray and on the end portion 24. Other shapes of the end portion may be used depending on the product to be merchandised.

[0018] The notch 26 may be used to receive and mount

an end 29 of a coiled spring 30 or similar biasing element. The notch 26 may define opposing angled edge surfaces 32 that are joined by edge 34. The edge 34 is preferably centered across the width of the product row formed in the tray 12 and extends perpendicular to the length of the tray. This configuration will center the coiled spring 30 relative to the tray 12 and will permit the spring to extend in a substantially parallel manner relative to the length of the tray. In other words, the depicted edge 34 of the notch 26 will permit the spring 30 to extend along the length of the tray 12 at or near the center of the product row formed by the tray. One skilled in the art will appreciate that the location and configuration of the notch may vary depending on the desired placement of the spring.

[0019] The coiled spring 30 may define an end 29 that is configured to be placed across the notch 26 and onto the edge 34. In one aspect, the end 29 of the coiled spring may be V-shaped and function as a hook such that the end 29 will wrap around the edge 34 with a portion of the end 29 of the coiled spring extending beneath the end portion 24 of the surface 16. This configuration permits an easy installation of the coiled spring onto the tray.

[0020] In another example, and referring to FIG. 7, a spring tip 60 may be added to the end 29 of the spring 30 to assist with the mounting of the spring to the system. The spring tip 60 may define numerous shapes and configurations depending on the configuration of the tray and the surface on which the spring end needs to attach. The spring tip 60 may be permanently attached to the end 29 of the coiled spring 30 or it may be detachable to permit the interchange or replacement of the spring tip 60. The spring tip 60 may be made of plastic and may define one or more apertures. Aperture 61 may be used to receive the end 29 of the coiled spring 30. A second aperture 63 may be used to receive a mating tongue or mounting member 65 extending from the surface 16 of the tray 12, as discussed below. With this configuration, the end 29 of the coiled spring 30 may be operatively connected to the tray 12.

[0021] In another example, the end 29 of the coiled spring may snap-fit into an aperture formed in the surface 16, or may be otherwise inserted and secured to an aperture or opening in the tray, thereby securing the end 29 of the coiled spring 30 in position.

[0022] Referring back to FIG. 1, dividers 18 may also be used to separate product into rows. The dividers 18 extend substantially upwardly from the surface 16 and as illustrated in FIG. 1, may be positioned on opposing sides of the surface 16. Alternatively, the dividers 18 may be positioned at any desired position on the tray 12 or to the surface 16. The dividers 18 may be formed as a unitary structure with the surface 16, or the dividers 18 may be detachable to provide added flexibility with the system. The dividers may be attached to a front or back rail depending on the system. The dividers 18 may define numerous configurations and may extend upwardly any desired distance to provide the desired height of the dividers between the rows of product to be merchandised. This

height may be adjustable by adding divider extenders or the like.

[0023] Located at the front of the tray 12 and extending between the dividers 18 may be one or more product-retaining members 44. The product-retaining members 44 serve as a front retaining wall or bar to hold the product in the tray 12 and to prevent the product from falling out of the tray 12. These members are also configured to permit the easy removal of the forward-most product positioned in the tray 12. The product-retaining member 44 may be one or more curve-shaped retaining ribs as depicted in FIG. 1. These illustrated retaining ribs may extend from one divider to another divider thereby joining the dividers. The retaining ribs may also extend part-way between the dividers, as also shown in FIG. 1 as rib 46, to also assist in retaining the product in the tray. Alternatively, and as shown in FIG. 6 the product-retaining member 44 may be a curve-shaped solid retaining wall 48 that extends between dividers. The retaining wall 48 may be transparent or semi-transparent to permit visualization of the product on the shelf. In another example, the retaining wall 48 may also extend part-way between the dividers 18. In yet another example depicted in FIGS. 11-15, the retaining wall 100 may be attached to the surface of the tray and not connect to the dividers. In this example, the retaining wall 100 may form an opening 102 defined by an upper member 104, opposing, curved side walls 106 that further define an angled edge 108, and a floor member 110. The side walls 106 may also be straight and not curved depending on the system. The end of the coiled spring may also snap-fit into the floor 110 or otherwise attached to the tray using any of the techniques described herein. One of skill in the art will readily appreciate that there are numerous shapes and configurations possible for the product-retaining member 44 and that the depicted configurations are merely examples of these numerous configurations.

[0024] Referring back to FIG. 1, the example trackless pusher mechanism 14 defines a pusher paddle 50 and a pusher floor 52. The pusher paddle 50 and pusher floor 52 may be formed as a single, unitary structure or may be separate structures that are joined together using known techniques. In addition, the pusher paddle 50 and pusher floor 52 may be made of any known suitable plastic or metal material. The pusher paddle and pusher floor may be reinforced using any known reinforcing techniques.

[0025] In one example, the pusher paddle 50 forms a curved-shape pusher surface or face 54 that is configured to match the shape of the product to be merchandised, such as plastic bottles or cans containing a beverage, as depicted in FIGS. 3-5. The curve-shaped pusher surface 54 permits the pusher to remain centrally aligned with the last product in the tray. This configuration reduces friction and drag between the pusher and the divider walls. In an alternative example, the pusher surface or face may be a flat surface. In yet another example, the flat pusher surface may be accompanied by a curved

shaped rib that is positioned near or on the top of the pusher paddle and that may be used to center and align product in the tray, in a manner similar to the curve-shaped pusher surface 54 depicted in FIG. 1. The curve shaped rib may define other shapes and configurations that permit cylindrical or similar shaped products to be properly pushed in the tray. Advertisement, product identification or other product information may be placed on the pusher surface 54.

[0026] Positioned behind the pusher surface or face 54 may be one or more support members 58, such as ribs, walls, or gussets. The support members 58 are configured to support the pusher surface 54 and further connect the pusher paddle 50 to the pusher floor 52. As can be seen in FIG. 5, positioned between the support members 58 is the coiled spring 30, and more specifically the coiled end 57 that is used to urge the pusher paddle 50 forward and along the tray 12, as understood in the art. Any technique used to operatively connect the coiled spring to the pusher paddle 50 may be used.

[0027] As shown in FIG. 1, the pusher floor 52 may be positioned below the pusher paddle 50 and may extend forward of the pusher surface 54 of the pusher paddle. The pusher floor 52 may extend any predetermined distance and at any predetermined angle. For example, the pusher floor 52 may extend substantially perpendicular to the pusher surface 54. In an example, the pusher floor 52 may extend a sufficient distance to permit one product, such as a single bottle or can, to be placed on the pusher floor. In another example, the pusher floor 52 may be configured to permit more than one product to be placed on the pusher floor. The pusher floor 52 may define any shape, including the depicted round shape and may define any product retaining features on the surface of the pusher floor, such as ribs, walls, or the like, to further hold the product on the pusher floor.

[0028] As can be seen in FIG. 2, the pusher floor 52 may define an elongated channel, groove or recessed portion 59 that is sized, shaped and configured to seat the coiled spring 30. In an example, the channel or groove 59 may extend across the floor 52 and in a substantially perpendicular manner relative to the pusher paddle 50. In an alternative example, the groove or channel may extend part-way or across the entire pusher floor 52, as shown in FIG. 19. Such configuration permits the proper alignment and positioning of the pusher paddle 50 in the tray. The groove 59 may define a depth that matches or exceeds the thickness of the coiled spring 30. With this configuration, the coiled spring 30 will seat at or below the pusher floor surface such that product will not sit directly on the coiled spring, rather, such product will sit on the pusher floor surface. As shown in FIG. 19, the pusher floor may include apertures and openings through which debris or other items may pass. Alternatively, the floor may be a solid surface.

[0029] In an alternative example, as shown in FIGS. 16-20, an adaptor 180 may be positioned on the surface 16. Referring to FIGS. 16 and 17, the adaptor 180 may

include one or more raised ribs 182 on which a product may sit. The raised ribs 182 may extend longitudinally along the length of the adaptor 180. The adaptor 180 may be a flat extrusion of plastic material (or any other suitable material) defining a planar surface 184 with the one or more ribs 182 extending outwardly from the planar surface 184. The adaptor 180 may define a rounded end 185 and include a notch or cut-away portion 186 through which or across which the coiled spring may extend. The rounded end 185 may be configured to match the shape of the product that is placed on the tray. Other shapes of the end 185, notch 186 and adaptor 180 may be used depending on the product to be merchandised. The adaptor 180 may be a separate, insertable piece or, alternatively, a piece formed integral with the surface 16.

[0030] Referring to FIG. 18, the adaptor 180 may be easily insertable onto the surface 16 and between the dividers 18. Referring to FIG. 19, once the adaptor 180 is installed, the pusher mechanism 14 may be positioned on top of the adaptor 180 and may slide freely across the ribs 182 of the adaptor 180. The coiled spring 30 may extend in a parallel manner between the ribs 182 and may seat at or below the top surface of the ribs 182, as more clearly shown in FIG. 20. With this configuration, the product to be merchandised may sit on, and slide along, the ribs 182 and not on the coiled spring 30.

[0031] In an alternative example, the ribs 182 may be a raised bead or raised beads, or a series of fingers that may be used to facilitate the movement of the product on the surface 16. In yet another alternative example, the ribs 182 may be product moving members, such as runners or one or more rollers or rolling members that permit the product to roll across the rolling members and toward the front of the product display system. Example roller assemblies include those disclosed and described in United States Application Serial No. 11/257,718 filed October 25, 2005, United States Publication No. 2006/0021957 A1, and assigned to RTC Industries, Inc.. As should be appreciated by those skilled in the art, there are many possible techniques that may be used with the described pusher mechanisms for facilitating the movement of the product on the shelf or floor.

[0032] The underneath side of the pusher floor 52 may be a smooth planar surface that will slide freely along the surface 16. Alternatively, and similar to above, the pusher floor 52 may include beads, runners, rollers or the like that will permit the pusher floor to slide along the surface yet raise the pusher floor up off of the surface 16. In another alternative example, the underneath side of the pusher floor may be configured with rail mounting members to permit the mounting of the pusher to a track or rail, as understood in the art.

[0033] The pusher floor further defines a notch or cut-out portion 62 through which will pass the coiled spring 30. The end 29 of the coiled spring 30 will pass through the notch 62 and through the notch 26 of the surface 16 and will mount to the tray using any of the techniques described above.

[0034] In use, as the pusher mechanism 14 is urged rearward in the tray 12, the end 29 of the coiled spring 30 will be held in position as described above and the coiled end 57 of the spring 30 will begin to uncoil behind the pusher paddle 50. If the pusher 14 is allowed to move forward in the tray 14, such as when product is removed from the front of the tray, the coiled end 57 of the spring 30 will coil and force the pusher paddle 50 forward in the tray 12, thereby urging product toward the front of the tray.

[0035] In an alternative example, the coiled spring 30 may extend below and underneath the pusher floor 52 as opposed to above and across the pusher floor, as depicted in the figures. With this configuration, the groove 59 and notch 62 may not be necessary.

[0036] The coiled spring 30 may be any biasing element including, without limitation, a flat coil spring commonly used with pusher systems. One or more coiled springs may be used to urge the pusher mechanism 14 forward depending on the desired application. The coil tension of the spring 30 may also vary depending on the particular application.

[0037] Referring to FIG. 2, the trackless pusher mechanism 14 is shown mounted to the tray 12. As illustrated, the pusher mechanism 14 fits in the tray 12 between the dividers 18. End 29 of the coiled spring 30 extends through the notch in the pusher floor and mounts to the tray as described above. In use, the pusher mechanism 14 will slide along the surface 16 of the tray 12 without the use of tracks, rails, or guides. As depicted in FIG. 2, the pusher mechanism 14 is shown in a forward position.

[0038] Referring to FIG. 3, the pusher mechanism 14 is shown merchandising one product 70 in the merchandise system 10. The product is prevented from tipping out of the tray by the product-retaining member 44. The product 70 may be any product to be merchandised including the depicted soft drink bottle. As shown in this Figure, the product 70 sits on the pusher floor 52 and the coiled spring 30 that extends below the product. The weight of the product on the floor 52 and the positioning of the product across the spring 30 prevent the paddle 50 from tipping in the tray 12.

[0039] Referring to FIG. 4, the pusher mechanism 14 is shown merchandising multiple products 70 in the merchandise system 10. As shown in this Figure, the product next to the pusher paddle 50 sits on the pusher floor 52 and the coiled spring 30 that extends below the product. The other products will sit on the coiled spring 30 that will extend below these products. Alternatively, the adaptor 180 may be positioned in the system in which case the product may sit on the ribs 182 of the adaptor as opposed to the coiled spring. Again, the weight of the product on the pusher floor 52 and the positioning of the products across the spring 30 prevent the paddle 50 from tipping in the tray. In use, as one product is removed from the front of the tray near the product-retaining member 44, the pusher mechanism 14 (through the urging of the coiled spring 30) will push the remaining product forward

in the tray 12 until the forward-most product contacts the product-retaining member 44. As additional products are removed, the pusher mechanism 14 will continue to push the remaining product toward the product-retaining member 44.

[0040] Referring to FIG. 5, a rear view of the pusher mechanism 14 shows the pusher mechanism 14 merchandising multiple products 70 in the merchandise system 10. Again, the product next to the pusher paddle 50 sits on the pusher floor 52 and the coiled spring 30 that extends below the product. The other products will sit on the coiled spring that will extend below these products. Alternatively, the adaptor 180 may be positioned in the system in which case the product may sit on the ribs 182 of the adaptor as opposed to the coiled spring. As one product is removed from the front of the tray near the product-retaining member 44, the coiled end 57 of the spring 30 will urge the pusher paddle 50 of the pusher mechanism 14 forward in the tray 12 until the forward-most product contacts the product-retaining member 44. As can be seen in this Figure, the coiled end 57 may be positioned between two support members 58. The support members will retain the coiled spring between these members. As can be seen in this Figure, the pusher floor 52 may also extend below the support members 58.

[0041] Referring to FIG. 6, an alternative example of the pusher tray is depicted. With this example, multiple trays 12 may be formed into a single multi-tray assembly 80. The multi-trays may have a common floor with dividers 18 extending upwardly from the floor to create the multiple trays or rows. In this example, the product-retaining member 44 may be a solid member that extends between two dividers, as discussed above. One or more of the multi-tray assemblies 80 may be coupled or joined together in a side-by-side manner using any known technique, including clips, dovetailing, fasteners, or the like. With this configuration, numerous rows of product can be provided for the merchandising of numerous products.

[0042] As stated above, the trackless pusher mechanism 14 may be used with gravity-fed systems, that is, systems having trays or product channels that are mounted on an incline to permit gravity to assist with the merchandising of the product. Alternatively, the trackless pusher mechanism 14 may be used with systems that are mounted in a non-inclined or in a horizontal manner where gravity will provide little or no assistance with the merchandising of the product. The trackless pusher mechanism 14 may also be used to push various shaped products.

[0043] FIG. 7 depicts an exemplary tip 60 for the end 29 of a coiled spring 30 that may be used with the merchandise system 10. As illustrated, the tip 60 defines an aperture 61 for receiving the end 29 of the coiled spring and an aperture 63 for mounting to the surface 16 of the tray. As can be seen in FIG. 7, in one aspect of an alternative example, extending beneath the surface 16 may be a tongue or mounting member 65 that may be configured to mate with the aperture 63 and to snap-fit the tip

60 onto the tongue 65 and thus to the surface 16.

[0044] Referring to FIG. 8, the example tip 60 of FIG. 7 is shown being mounted to the tongue or mounting member 65. The tongue 65 may include an elongated outwardly extending rib 67 that is used to snap-fit the tip 60 onto the tongue 65. One skilled in the art will appreciate that other techniques may be used to mount the tip 60 to the surface 16 and that the depicted technique is merely an example of one such technique.

[0045] Referring to FIG. 9, the example tip 60 is shown fully mounted in a snap-fit manner to the surface 16, and more specifically to the end portion 24 of the surface 16 of the tray 12. Also depicted is the mounting of the end 29 of the coiled spring 30 to the aperture 61 of the tip 60. As shown in FIG. 9, the end 29 of the coiled spring may be inserted into the aperture 61. The aperture 61 is configured to receive the end 29 of the coiled spring and hold the end 29 in position, and to also permit the removal of the end 29 of the coiled spring from the aperture 61 in those circumstances where it is desirable to disconnect the coiled spring from the tip to permit the removal of the pusher mechanism 14 from the system.

[0046] Referring to FIG. 10 there is shown the end 29 of the coiled spring fully mounted to the example tip 60. As illustrated in this Figure, the coiled spring 30 is now operatively connected to the surface 16 of the tray 12. As a result, the pusher mechanism 14 is now mounted to the tray 12.

[0047] Referring to FIGS. 21-27 there is shown an alternative technique for mounting the end 29 of the coiled spring 30 to the merchandise display system. A mounting member 130 may be used to mount the end 29 of the coiled spring to the floor 131 of the system. For those systems that include spaced-apart glide rails 132 that are joined together by connecting ribs 134 (Figures 26-27), the mounting member 130 may be snap-fit to or otherwise mounted on the floor 131 and between the glide rails 132. The mounting member will thus hold the end of the coiled spring in position and to the floor of the system.

[0048] Referring to FIGS. 22 & 23, the mounting member 130 may include one or more legs 136 on one or more sides of the member 130. The legs may be configured to snap-fit to the underside of the rails 132 to thereby hold the mounting member 130 to the floor of the system. The legs 136 may include legs ends 137 defining an L-shape or angled surfaces that are configured to contact the underside of the rail 132 and prevent the mounting member 130 from being lifted up from the floor, except by the intentional flexing of the legs out from the underside of the rail 132. The legs 136 may contact the connecting ribs 134 which will prevent slidable movement of the mounting member 130 relative to the floor. Referring to FIG. 26, the mounting member 130 is shown being mounted to the floor of the system and more specifically to the rails. FIG. 27 illustrates that the mounting member 130 remains in position as the pusher paddle 141 is pulled away from the front of the system. The mounting member 130 may be connected to this type of system floor 131

using other techniques. For example, a separate mounting clip, one or more fasteners, adhesives, or other techniques may be used to secure the mounting member 130 to the floor 131.

[0049] Referring to FIGS. 22 & 23, the mounting member 130 may also include an aperture or opening or slot 138 that will receive the end 29 of the spring. The spring may be mounted using any of the techniques described herein, or other techniques. The configuration of the aperture 138 and mounting member 130 will hold the spring in position on the mounting member 130, similar to the technique described above.

[0050] The mounting member 130 may also include glide ribs 139 on a top surface that allow product placed thereon to slide more easily across the mounting member after the mounting member is installed to the floor of the system. The mounting member 130 may also include an elongated flat body 140 that extends forward of the location of the legs 136 to provide stability to the mounting member 130 after it is mounted to the floor of the system.

[0051] Referring to FIGS. 24, 25 & 27, the pusher paddle or pusher mechanism 141 may include a pusher face 143 configured to match the shape of the product against which it pushes. As illustrated, the pusher face 143 may be curve shaped to match the shape of a bottle or other cylindrical object. The pusher paddle 141 may also include a pusher floor 145 similar to the pusher floor configurations described above. The pusher floor 145 may further include a spring sleeve 147 that receives the coiled spring 30 to shield and protect the spring. The spring sleeve 147 may extend partly or fully across the pusher floor 145 and in the direction of the spring 30. The spring sleeve 147 may have a relatively short height and a flat surface 149 to permit product to sit thereon without significant tipping or leaning of the product.

[0052] The pusher paddle 141 may be positioned on top of the floor 131 to glide on top of the surface, as described above. The pusher paddle may be positioned between two product divider walls 153 that are joined together by a product retaining member 155. Additional product retaining members 157 may extend outwardly from the product dividers.

[0053] Referring to FIGS. 28 & 29 there is shown yet another alternative technique for mounting the end 29 of the coiled spring 30 to the merchandise display system. In this example, the end 29 is riveted to the tray 216.

[0054] Referring to FIGS. 28-32 in an alternative example, the trackless pusher system may be retrofitted to an existing shelf assembly 230, which may have product dividers already built in. For example, in one example, the trackless pusher system may be retrofitted to an existing wire shelf assembly. Referring to FIGS. 30-32, a tray or adaptor 216 may have a glide floor 222 that may be sized to a single lane of the shelf 234 or sized to an entire shelf width. The glide floor 222 may include several raised ribs 224, which help to reduce friction for the products merchandised on the tray 216. It should be understood that one or more raised ribs 224 may be used with

the glide floor 222. Alternatively, the glide floor 222 may be a flat, planar surface without raised ribs. The tray or adaptor 216 may be configured similar to the adaptor 180 of FIG. 16.

[0055] As shown in FIGS. 28 & 30, the end 29 of coiled spring 30 may be riveted, via a rivet 229, to the front end 228 of the tray 216, or may be attached by any other attachment technique. The tray 216 can be retained to the shelf by any attachment technique suitable for the particular shelf. In one example, and as illustrated in FIGS. 29-32, the tray 216 may include one or more outwardly extending fingers or snaps 220, which may engage one or more individual wires 232 of the shelf 234 to retain the tray 216 on the shelf 234. The fingers or snaps 220 may extend longitudinally along the length of the tray 216, or may be spaced apart along the length of the tray. The snaps 220 may be used to snap-fit the tray 216 to the existing wire shelf. As depicted in FIGS. 29A & 29B, the snaps 220A and 220B may define numerous configurations that permit the tray 216 to be snap fit to the shelf. The example depicted in FIGS. 28-32 allows for the placement of the trackless pusher system in an existing shelving system, such as a wire shelf system, as a low cost alternative to the entire trackless pusher assembly. It should be understood that with this example, any pusher mechanism described herein may be used.

[0056] As depicted in FIGS. 33 & 44, in another example, the display management system comprises one or more pusher mechanisms 286, one or more dividers 266, one or more trays 306, and one or more retainers 250. The pusher mechanisms 286 can be formed of a pusher paddle 287 and a pusher floor 288. Product is placed on the pusher floor 288 and guided to the front of the display management system via the dividers 266 and the pusher paddle 287. The coiled spring 30 biases the pusher mechanism 286 toward the retainer 250 such that product moves to the front of the system.

[0057] In one example, depicted in FIG. 33, the coiled spring 30 can be mounted to the retainer 250. Alternatively, the coiled spring 30 can be mounted to a divider 266 (also shown in FIGS. 48 & 49). The coiled spring 30 can be directly mounted to the retainer 250, as depicted in FIG. 33, or can be mounted to the retainer 250 via a separate adapter 252, as depicted in FIG. 34.

[0058] As depicted in FIG. 35, the adapter 252 has a wall 254 proximate a first end 256. The first end 256 has a curved portion 262, which curves upwardly. The middle portion of the adapter 252 may be provided with a curved slot 260, which is adapted to receive a correspondingly shaped spring end (not shown).

[0059] The coiled spring 30 at one end can be secured to the middle portion of the adapter 252. In an example, the curved slot 260 corresponds in shape and size of the first spring end. Additionally, the first spring end of the coiled spring 30 can be crimped or bent to provide for additional fastening. Nevertheless, any sufficient fastening method can be used to fix the first spring end of the coiled spring 30 to the adapter 252.

[0060] In an example, shown in FIGS. 36 & 37, the retainer 250 has a curved slot 284 corresponding in shape and size to the curved portion 262 of the adapter 252. The curved slot 284 extends the length of the retainer to allow for unlimited positioning of the adapter 252 along the length of the retainer 250.

[0061] To secure the first spring end of the coiled spring 30 to the retainer 250, the curved portion 262 of the adapter 252 is placed into the curved slot 284 of the retainer 250. The curved slot 284 secures the adapter 252 and the first spring end of the coiled spring 30 to the retainer 250 and provides for a quick and easy assembly of the display system. The wall 254 provides additional stability in the connection between the retainer 250 and the adapter 252. Other methods, however, can be used to secure the adapter 252 and/or the first spring end of the coiled spring 30 to the retainer 250.

[0062] Alternatively, as depicted in FIGS. 33 & 44 the coiled spring 30 of the pusher paddle 287 can be mounted directly to the front of the tray 306. The first spring end 290 of the coiled spring 30 is provided with a curved portion. The curved portion curves downwardly from the pusher floor 288 and is adapted to be received in a recess 316 (shown in FIG. 33) defined by a lip 318 of the front surface of the dispensing tray 306 and the retainer 250. A vertically oriented surface of the retainer 250 and the lip 318 are spaced such that a gap is formed between the vertically oriented surface and a front edge of the lip 250. To secure the coiled spring 30 and the pusher mechanism 286 to the assembly, the first spring end 290 is inserted into the gap formed between the vertically oriented surface of the retainer 250 and the front edge of the lip 318 and placed into the recess 316 formed by the lip 318 of the dispensing tray 306 and the retainer 250.

[0063] In another example depicted in FIGS. 38, 39, 48 & 49, the coiled spring 30 can be directly mounted to a divider 266. In addition, in this example the coiled spring 30 can be mounted perpendicular to the pusher floor 288 such that the axis, about which the coiled spring 30 is coiled, is perpendicular to the pusher floor 288. This orientation has the benefit of preventing the pusher paddle from tipping back. The first spring end 290 can be provided with an angled portion 292 and a tip portion 296. In one example, the angled portion 292 can be bent perpendicular to the coiled spring body 294. The divider can be provided with a slot 298, which is adapted to receive the tip portion 296 of the first spring end 290.

[0064] To secure the coiled spring to the divider, the tip portion 296 is inserted into the slot 298. Once the tip portion 296 is fully inserted into the slot 298, the angled portion 292 engages the slot 298 so as to secure the first spring end 290 to the divider 266.

[0065] As depicted in FIG. 33, various pusher mechanism designs can be implemented. The pusher paddle 287 can be formed flat to accommodate correspondingly shaped product. Alternatively, the pusher paddle 286 can have a curved first end and a flat second end. This serves to accommodate a variety of cylindrical products having

a variety of different sized diameters and to facilitate the operation of the pusher mechanism 286. During operation, the product in the pusher mechanism 286 and the curved first end together force the pusher mechanism against the divider 266, such that the coil spring 30 remains flat against the divider 266 holding the first spring end 290, while in tension or in operation. This allows for a smoother operation of the pusher mechanism and ensures that the product is properly dispensed as users remove the product from the system.

[0066] In another example depicted in FIGS. 40-41D, the distance between the dividers 266 can be adjusted to accommodate different sized containers. The dividers 266 can be provided with connecting portions 272. The connecting portions 272 can be provided with a first elongated angled surface 268 and a second elongated angled surface 270. Additionally, the connecting portions 272 can be provided with a plurality of projections 274. As depicted in FIG. 41B, the rails can be formed of teeth 278 having face surfaces 280 and flank surfaces 282.

[0067] When assembled, as depicted in FIG. 41C, the connecting portions 272 are received between the teeth 278 of the rails. Additionally, the elongated angled surfaces 268 and 270 and the projections 274 are wedged between the teeth 278. Also as shown in FIG. 41C, the elongated angled surfaces 268 and 270 engage the face surfaces 280, and the projections 274 engage the lower surfaces of the teeth 278. Flank surfaces 282 contact the connecting portion 272.

[0068] In an example depicted in FIG. 42, the trays 306 are provided with dovetail connections. A first side 308 of the trays 306 is provided with tongues 312 adapted to fit within grooves 314 located on a second side 310 of the trays 306. To connect the trays, the grooves 314 are aligned with tongues 312 such that the tongues 312 are firmly secured within the grooves 314.

[0069] In an example depicted in FIG. 43, the trays 306 are configured to receive the retainer 250 at a front end. The retainer can be provided with rectangular holes 300, and the retainer is provided with correspondingly shaped and sized projections 302. To secure the retainer 250 to the tray 306, the projections 302 fit into holes 300 to lock the retainer into place on the tray 306.

[0070] As depicted in FIGS. 45-47, after the product management display system is assembled, product is loaded into the system. By adjusting the dividers 266 a wide variety of product sizes and shapes can be loaded into the system. As shown in FIGS. 46 & 47, the coil spring 30 in conjunction with the pusher paddle 287 push the product toward the retainer 250. As a user takes product out of the system, the pusher paddle 287 pushes the remaining product such that the product slides along the floor 264 to the retainer 250. This assures that all product remains at the front of the display system.

[0071] As depicted in FIGS. 50-52, the product management display system 400 can be arranged such that trays 402, 404 can be stacked on top of one another. This example can consist generally of a first tray 402, a

second tray 404, a first spacer 406, and a second spacer 408.

[0072] The trays 402, 404 are each arranged to house product to be dispensed. The first tray 402 and the second tray 404 can be each provided with a clear retainer 410, a pusher mechanism 412, first and second guiding walls, and a coil spring 414.

[0073] The pusher mechanism 414 is arranged in a similar fashion as the examples discussed above, such that it slides product along the surface of the trays 402, 404, while product is removed. Additionally, any of the alternative arrangements of the pusher mechanism discussed above may be implemented in a stackable tray arrangement.

[0074] To provide for an easy assembly and disassembly, the stackable product management display system can be provided with a dovetail connection or any other suitable connection, such as a snap-fit connection, screw-thread connection, or a rivet connection. The first and second trays are provided with detents 416 for assembling the first and second spacers 406, 408 to the first and second trays 402, 404. Each of the first and second trays 402, 404 can be provided with sockets 418 on their respective outside surfaces for receiving the correspondingly shaped detents 416 located on the first and second spacers 406, 408.

[0075] To assemble the stackable product management display system, the detents 416 located on the first and second spacers 406, 408 are placed into the correspondingly shaped sockets 418 on the outside surfaces of the first and second trays 402, 404 in a locking arrangement. This provides for a stackable arrangement that can be implemented in conjunction with any of the examples discussed above.

[0076] In another example depicted in FIGS. 53-57, a pusher paddle 500 may be mounted directly to a shelf 508 and held to the shelf by the end of the coiled spring 504. The pusher paddle 500 will slide along and on top of the surface of the shelf. One or more dividers 502 that define a T-shaped configuration may be positioned next to the pusher paddle 500. In an alternative example, the base of the divider 502 may be positioned on the shelf such that the base is located underneath the pusher paddle 500. With this configuration, the pusher paddle 500 may slide along the base of the divider. If the dividers 502 are positioned sufficiently far away from the paddle 500, the paddle 500 will slide directly on the surface of the shelf 508. The dividers 502 may define numerous configurations including those described herein and may be secured to the shelf using any known technique, including push pins, rivets, fasteners, adhesives and the like.

[0077] In one example, the end 510 of the coiled spring 504 is positioned within a hole or aperture 506 located on the shelf 508. The end 510 may define a spring tip that may further define any suitable configuration that permits the spring end to pass into the hole 506 and remain secured to the hole. For example, the spring tip of

end 510 may define a hook-shaped configuration that permits the end 510 to wrap around the edges of the hole 506. Alternatively, the spring tip may define one or more catches that hook onto the edges of the hole 506. Still other spring tip configurations are possible.

[0078] As shown in FIG. 54, to further secure the spring 504 to the shelf 508, a fastener 512, pin, rivet or the like may be used. This fastener 512 will provide a second spaced-apart anchoring point for the spring that will hold the spring in the desired alignment during the full operation of the spring 504 as the paddle 500 moves back and forth on the shelf 508. It will be appreciated that depending on the shelf type and the number and spacing of existing holes on the shelf, even more anchoring points are possible.

[0079] Referring to FIGS. 55-57, there is depicted an example mounting technique for mounting the spring 504 of the paddle 500 onto a shelf. As shown in FIG. 55, the end 510 of the spring 504 is inserted into the hole 506 on the shelf. The end 510 may define a spring tip as described herein to hold the end 510 to the edges of the hole 506. As shown in FIG. 56, the spring 504, which in this example includes a rivet or stud 514, is lowered onto the shelf such that the rivet or stud 514 fits within another hole 506 located on the shelf. This rivet or stud provides another anchoring point for the spring. As shown in FIGS. 56 & 57, the spring 504 may define an aperture 516 for receiving yet another rivet or stud 518 to even further secure the spring 504 to the shelf. With these multiple anchoring points, the spring 504 will be secured to the shelf, and thus the paddle will be secured to the shelf. Also, with these multiple anchoring points, the spring will retain the desired alignment during the full operation of the spring as the paddle moves back and forth on the shelf. It should be understood that other anchoring techniques are possible to secure the end of the spring 504 to the shelf, including any of the technique described herein, or any combination of the techniques described herein. It should be appreciated that if a shelf does not have preexisting holes that could be used to anchor the spring 504, one or more holes could be drilled into the shelf at the desired locations.

[0080] With the example depicted in FIGS. 53-57, it can be appreciated that a trackless pusher paddle may be retrofitted directly onto existing store shelves with very minimal effort or extra mounting pieces. Additionally, this example is easily removable to permit the repositioning of the pusher paddle at any location on the shelf to accommodate any size and type of product being merchandised on the shelf. One of skill in the art will also appreciate that any of the pusher paddles described herein may be mounted directly to the shelf using the techniques described herein, or by using any combination of the techniques described herein.

[0081] In an embodiment of the invention, depicted in FIGS. 58-60, a tray 12 includes a front rounded portion 669. As illustrated in FIG. 58, the tray 12 also includes a forward lip 670 that is located adjacent the front of the

front rounded portion 669. The forward lip 670 can be rounded and extends, in this Figure perpendicularly, in an upward direction from the tray 12. The forward lip can have different heights and in an embodiment has a height of 1.27 cm (0.5 inches) from the tray 12. The forward lip includes a raised edge or wall portion 671 at each lateral end of the forward lip. The wall portions serve to close off the side portions of the caption pocket that is described later.

[0082] The tray also includes a shelf 672 that is located immediately adjacent and in a frontward direction of the forward lip 670. The shelf 672 can be curved and can match the curvature of the forward lip 670. The shelf 672 includes a horizontal surface 674. The shelf 672 also includes protrusions 676 that are perpendicular to the horizontal surface 674 of the shelf 672. The shelf 672 and the forward lip 670 add strength to the front portion of the pusher tray. In addition, the horizontal surface 674 of the shelf 672 serves to close off the bottom portion of the caption pocket that is described later.

[0083] As shown in FIG. 58, a front wall 100 includes a top wall 680 and a bottom wall 682. The top wall and the bottom wall are connected by two side legs 684. The top wall 680 and the bottom wall 682 are curved. An aperture 686 is defined by the top wall 680, bottom wall 682 and side legs 684. This aperture can be sized such that a product P will not fit through the aperture. The top wall also can contain a contour from the top 688 of the top wall to the bottom 690 of the top wall. This contour assists in limiting or preventing scratches to the top wall. The contour also increases the strength of the top wall. The bottom wall includes a side wall 708 that in operation is adjacent to and may be in contact with protrusion 676. The side legs include notches 698 at the bottom portion of the side legs 684. The notches assist in allowing the hooks 694 to be inserted into apertures 696. The front wall can be constructed of clear material which will not obstruct the view of product P being merchandised in trays 12.

[0084] A graphic pocket 692 is defined by (a) the bottom wall 682 of the front wall 100, (b) the curved portion of lip 670, (c) wall portions 671 at the lateral ends of lip 670 and (d) the horizontal surface 674 of shelf 672. This graphic pocket is sized to contain a graphic strip or other advertising. Once the graphic strip is placed in the pocket 692, it is protected from all sides other than the top.

[0085] The front wall further comprises two hooks 694. These hooks are configured to fit within with apertures 696 of tray 12. In an embodiment, to fit the hooks 694 within the apertures 696 the front wall first is rotated in the direction of the arrow "A" as depicted in FIG. 58 with the hooks 694 not in engagement with the apertures 696. The hooks 694 are then initially inserted into the apertures 696 while the hooks 694 are at an angle to the apertures. The front wall is then rotated in the direction of the arrow "B" until the front wall comes to the position shown in FIG. 59. In this position, upper portions 696 of the hooks 694 are parallel to the underside of the surface

16 of tray shelf 12 and the hooks 694 are fully inserted through the apertures 696. The hooks 694 are thereby mounted to the tray 12. In an embodiment, the rear edge 700 of side legs 684 is adjacent to the front edge 702 of the divider 18. The rear edge 700 of side legs 684 may be in contact with the front edge 702 of divider 18.

[0086] FIG. 59 discloses first, second and third different mounting states of the front wall 100 and a graphic caption 706. In the first arrangement shown (rightmost illustration), the front wall 100 is not mounted with the tray 12. Instead, front wall 100 is shown elevated above tray 12. In this arrangement, graphic caption 706 also is shown in an unmounted state. In the second arrangement shown (centre illustration), the front wall 100 is mounted with tray 12. In this arrangement, the graphic caption 706 is unmounted. The downward arrows in this illustration show the direction graphic caption 706 will move in to mount with the graphic pocket 692. In the third arrangement shown (leftmost illustration), the graphic caption 706 is mounted in graphic pocket 692. When several trays 12 are connected to each other, the graphics caption 706 can form a continuous or near-continuous strip of graphics advertising. Trays 12 can be formed individually and connected together, such as through dovetail connections. In an embodiment, multiple trays can be formed as a unit to create a single unit for merchandising numerous rows of products.

[0087] FIG. 60 discloses several front walls 100 mounted with several trays 12. The near-continuous nature of the graphics advertising from the graphics caption 706 is seen in FIG. 60. In addition, FIG. 60 discloses product P being maintained on trays 12 and constrained by front walls 100.

[0088] Variations and modifications of the foregoing may be within the scope of the present invention as limited by the scope of the appended claims.

Claims

1. A product management display system comprising:

- a tray (12) having a front rounded portion (669) and a surface (16) on which product can be placed on the tray (12) defining a plurality of apertures (696) in the surface (16);
- a lip (670) extending upward from the front rounded portion (669) of the tray (12);
- a front shelf (672) extending forward from the lip (670); and
- a front wall (100) having a top wall portion (680), a bottom wall portion (682), and two side leg portions (684), wherein the top wall portion (680), bottom wall portion (682), and two side leg portions (684) form a wall aperture (686) in the front wall (100),

wherein the front wall (100) includes a plurality of

projections (694) configured to engage with the plurality of apertures (696) on the surface (16) of the tray (12).

2. The product management display system of claim 1, further comprising:

two wall portions (671), each of the two wall portions (671) extending from an opposite end of the lip (670),
wherein a graphic pocket (692) is formed by the bottom wall portion (682), the lip (670), and the two wall portions (671).

3. The product management display system of claim 1, wherein the front wall (100) is curved.

4. The product management display system of claim 1, wherein the wall aperture (686) is smaller than product (P) placed on the surface of the tray (12) for display.

5. The product management display system of claim 1, wherein the front wall (100) is removable from the tray (12).

6. The product management display system of claim 1, further comprising a plurality of dividers (18) attached to the tray (12), the plurality of dividers (18) configured to separate product (P) into one or more rows.

7. The product management display system of claim 6, wherein an edge of each of the side legs portions (684) abuts an edge of one of the plurality of dividers (18).

8. The product management display system of claim 1, further comprising:

a pusher mechanism (14) configured to slide across at least a portion of the surface (16) of the tray (12), the pusher mechanism (14) mounted to and held onto the tray (12) only by a coiled spring (30).

9. The product management display system of claim 1, wherein the front wall (100) is translucent.

10. The product management display system of claim 2, wherein the graphic pocket (692) is configured to receive a graphic strip (706).

11. The product management display system of claim 10, wherein the pusher mechanism (14) sits on top of and does not extend below the surface (16) of the tray (12).

12. The product management display system of claim 11, wherein the surface (16) of the tray (12) defines a plurality of openings (20) to permit debris or other materials to pass through.

13. A product management display system as claimed in claim 1, comprising:

a plurality of trays (12), each tray (12) having a front rounded portion (669) and a surface (16) on which product can be placed on the tray (12) defining a plurality of apertures (696) in the surface (16), each of the plurality of trays (12) having two sides;

a lip (670) extending upward from the front rounded portion (669) of each of the plurality of trays (12);

a front shelf (672) extending forward from the lip (670) of each of the plurality of trays (12);

a plurality of dividers (18), each of the plurality of trays (12) having one divider (18) extending upwardly from each of the two sides; and

a plurality of front walls (100), each of the front walls (100) having a top wall portion (680), a bottom wall portion (682), and two side leg portions (684), wherein the top wall portion (680), bottom wall portion (682), and two side leg portions (684), form a wall aperture (686) in the front wall (100),

wherein each of the plurality of front walls (100) includes a plurality of projections (694) configured to engage with the plurality of apertures (696) on the surface of one of the plurality of trays (12).

14. The product management display system of claim 13, further comprising:

two wall portions (671) extending from an opposite end of the lip (670) on each of the plurality of front walls (100),

wherein each of the front walls (100) includes a graphic pocket (692) formed by the bottom wall portion (682), the lip (670), and the two wall portions (671).

15. The product management display system of claim 14, wherein a side of each of the plurality of trays (12) are positioned adjacent a side of another one of the plurality of trays (12) on a shelf and wherein the graphic pockets (692) of each of the front walls (100) form a nearly continuous strip (706) of advertising.

Patentansprüche

1. Warenverwaltungs-Anzeigesystem, umfassend:

- eine Schale (12), die einen vorderen gerundeten Teil (669) und eine Oberfläche (16) aufweist, auf der Ware auf der Schale (12) platziert werden kann und die in der Oberfläche (16) eine Vielzahl von Öffnungen (696) festlegt, 5
- einen Rand (670), der von dem vorderen gerundeten Teil (669) der Schale (12) nach oben verläuft,
- einen vorderen Bund (672), welcher von dem Rand (670) nach vom verläuft, 10
- und eine vordere Wand (100), die einen oberen Wandteil (680), einen unteren Wandteil (682) und zwei Seitenabschnitteile (684) aufweist, wobei der obere Wandteil (680), der untere Wandteil (682) und die zwei Seitenabschnitteile (684) in der vorderen Wand (100) eine Wandöffnung (686) bilden, 15
- wobei die vordere Wand (100) eine Vielzahl von Vorsprüngen (694) enthält, die gestaltet sind, um in die Vielzahl von Öffnungen (696) in der Oberfläche (16) der Schale (12) einzugreifen. 20
- 2. Warenverwaltungs-Anzeigesystem nach Anspruch 1, ferner umfassend:** 25
- zwei Wandteile (671), wobei jedes der zwei Wandteile (671) von einem gegenüberliegenden Ende des Randes (670) aus verläuft, wobei durch den unteren Wandteil (682), der Rand (670) und die zwei Wandteile (671) eine Grafiktasche (692) gebildet ist. 30
- 3. Warenverwaltungs-Anzeigesystem nach Anspruch 1, wobei die vordere Wand (100) gekrümmt ist.** 35
- 4. Warenverwaltungs-Anzeigesystem nach Anspruch 1, wobei die Wandöffnung (686) kleiner ist als auf der Oberfläche der Schale (12) zur Anzeige platzierte Ware (P).** 40
- 5. Warenverwaltungs-Anzeigesystem nach Anspruch 1, wobei die vordere Wand (100) von der Schale (12) abnehmbar ist.** 45
- 6. Warenverwaltungs-Anzeigesystem nach Anspruch 1, ferner umfassend eine Vielzahl von Trennwänden (18), die an der Schale (12) angebracht sind, wobei die Vielzahl der Trennwände (18) gestaltet ist, um Ware (P) in eine oder mehrere Reihen aufzuteilen.** 50
- 7. Warenverwaltungs-Anzeigesystem nach Anspruch 6, wobei eine Kante jedes der Seitenabschnitteile (684) an einer Kante eines der Vielzahl von Trennwänden (18) anliegt.** 55
- 8. Warenverwaltungs-Anzeigesystem nach Anspruch 1, ferner umfassend:**
- einen Schiebermechanismus (14), der gestaltet ist, um über zumindest einen Teil der Oberfläche (16) der Schale (12) zu gleiten, wobei der Schiebermechanismus (14) an der Schale (12) durch lediglich eine Schraubenfeder (30) angebracht ist und auf dieser gehalten wird.
- 9. Warenverwaltungs-Anzeigesystem nach Anspruch 1, wobei die vordere Wand (100) lichtdurchlässig ist.**
- 10. Warenverwaltungs-Anzeigesystem nach Anspruch 2, wobei die Grafiktasche (692) zur Aufnahme eines Grafikbandes (706) gestaltet ist.**
- 11. Warenverwaltungs-Anzeigesystem nach Anspruch 10, wobei der Schiebermechanismus (14) auf der Oberseite der Oberfläche (16) der Schale (12) sitzt und sich nicht unter die Oberfläche erstreckt.**
- 12. Warenverwaltungs-Anzeigesystem nach Anspruch 11, wobei die Oberfläche (16) der Schale (12) eine Vielzahl von Öffnungen (20) festlegt, um Abfälle oder andere Stoffe hindurchtreten zu lassen.**
- 13. Warenverwaltungs-Anzeigesystem nach Anspruch 1, umfassend**
- eine Vielzahl von Schalen (12), wobei jede Schale (12) einen vorderen gerundeten Teil (669) und eine Oberfläche (16) aufweist, auf der Ware auf der Schale (12) platziert werden kann und die eine Vielzahl von Öffnungen (696) in der Oberfläche (16) festlegt, wobei jede der Vielzahl von Schalen (12) zwei Seiten aufweist,
- einen Rand (670), der von dem vorderen gerundeten Teil (669) jedes der Vielzahl von Schalen (12) nach oben verläuft,
- einen vorderen Bund (672), welcher von dem Rand (670) jedes der Vielzahl von Schalen (12) nach vom verläuft,
- eine Vielzahl von Trennwänden (18), wobei jede der Vielzahl von Schalen (12) eine Trennwand (18) aufweist, die von jeder der zwei Seiten nach oben verläuft,
- und eine Vielzahl von vorderen Wänden (100), wobei jede der vorderen Wände (100) einen oberen Wandteil (680), einen unteren Wandteil (682) und zwei Seitenabschnitteile (684) aufweist, wobei der obere Wandteil (680), der untere Wandteil (682) und die zwei Seitenabschnitteile (684) in der vorderen Wand (100) eine Wandöffnung (686) bilden,
- wobei jede der Vielzahl von vorderen Wänden (100) eine Vielzahl von Vorsprüngen (694) enthält, die gestaltet sind, um in die Vielzahl von Öffnungen (696) in der Oberfläche einer der Vielzahl von Schalen (12) einzugreifen.

14. Warenverwaltungs-Anzeigesystem nach Anspruch 13, ferner umfassend zwei Wandteile (671), die von einem gegenüberliegenden Ende des Randes (670) an jeder der Vielzahl von vorderen Wänden (100) verlaufen, wobei jede der vorderen Wände (100) eine Grafiktasche (692) enthält, die durch den unteren Wandteil (682), den Rand (670) und die zwei Wandteile (671) gebildet ist.
15. Warenverwaltungs-Anzeigesystem nach Anspruch 14, wobei eine Seite jeder der Vielzahl von Schalen (12) neben einer Seite einer weiteren der Vielzahl von Schalen (12) auf einem Bund positioniert ist und wobei die Grafiktaschen (692) jeder der vorderen Wände (100) ein nahezu kontinuierliches Werbeband (706) bilden.

Revendications

1. Système de gestion de présentation de produit comprenant :

un plateau (12) présentant une partie arrondie avant (669) et une surface (16) sur laquelle un produit peut être placé sur le plateau (12) définissant une pluralité d'ouvertures (696) dans la surface (16) ;

une lèvre (670) s'étendant vers le haut depuis la partie arrondie avant (669) du plateau (12) ;
une tablette avant (672) s'étendant vers l'avant depuis la lèvre (670) ; et

une paroi avant (100) présentant une partie de paroi supérieure (680), une partie de paroi inférieure (682), et deux parties de branches latérales (684), où la partie de paroi supérieure (680), la partie de paroi inférieure (682), et les deux parties de branches latérales (684) forment une ouverture de paroi (686) dans la paroi avant (100),

où la paroi avant (100) inclut une pluralité de protubérances (694) configurées pour s'engager avec la pluralité d'ouvertures (696) sur la surface (16) du plateau (12).

2. Système de gestion de présentation de produit selon la revendication 1, comprenant en outre :

deux parties de paroi (671), chacune des deux parties de paroi (671) s'étendant depuis une extrémité opposée de la lèvre (670),
où un logement graphique (692) est formé par la partie de paroi inférieure (682), la lèvre (670), et les deux parties de paroi (671).

3. Système de gestion de présentation de produit selon la revendication 1, dans lequel la paroi avant (100)

est incurvée.

4. Système de gestion de présentation de produit selon la revendication 1, dans lequel l'ouverture de paroi (686) est plus petite qu'un produit (P) placé sur la surface du plateau (12) pour présentation.

5. Système de gestion de présentation de produit selon la revendication 1, dans lequel la paroi avant (100) peut être retirée du plateau (12).

6. Système de gestion de présentation de produit selon la revendication 1, comprenant en outre une pluralité de cloisons (18) fixées sur le plateau (12), la pluralité de cloisons (18) étant configurée pour dispatcher un produit (P) dans une ou plusieurs rangées.

7. Système de gestion de présentation de produit selon la revendication 6, dans lequel un bord de chacune des parties de branches latérales (684) vient en butée sur un bord d'une cloison parmi la pluralité de cloisons (18).

8. Système de gestion de présentation de produit selon la revendication 1, comprenant en outre :

un mécanisme poussoir (14) configuré pour glisser le long d'au moins une partie de la surface (16) du plateau (12), le mécanisme poussoir (14) étant monté sur et maintenu dans le plateau (12) uniquement au moyen d'un ressort enroulé (30).

9. Système de gestion de présentation de produit selon la revendication 1, dans lequel la paroi avant (100) est translucide.

10. Système de gestion de présentation de produit selon la revendication 2, dans lequel le logement graphique (692) est configuré pour recevoir une bande graphique (706).

11. Système de gestion de présentation de produit selon la revendication 10, dans lequel le mécanisme poussoir (14) siège sur le dessus de la surface (16) du plateau (12) et ne s'étend pas en dessous de celle-ci.

12. Système de gestion de présentation de produit selon la revendication 11, dans lequel la surface (16) du plateau (12) définit une pluralité d'orifices (20) pour permettre aux débris ou autres matériaux de passer au travers.

13. Système de gestion de présentation de produit selon la revendication 1, comprenant :

une pluralité de plateaux (12), chaque plateau (12) présentant une partie arrondie avant (669) et une surface (16) sur laquelle un produit peut

être placé sur le plateau (12) définissant une pluralité d'ouvertures (696) dans la surface (16), chaque plateau parmi la pluralité de plateaux (12) ayant deux côtés ;
 une lèvre (670) s'étendant vers le haut depuis la partie arrondie avant (669) de chaque plateau parmi la pluralité de plateaux (12) ;
 une tablette avant (672) s'étendant vers l'avant depuis la lèvre (670) de chaque plateau parmi la pluralité de plateaux (12) ;
 une pluralité de cloisons (18), chaque plateau parmi la pluralité de plateaux (12) ayant une cloison (18) s'étendant vers le haut depuis chacun des deux côtés ; et
 une pluralité de parois avant (100), chacune des parois avant (100) présentant une partie de paroi supérieure (680), une partie de paroi inférieure (682), et deux parties de branches latérales (684), où la partie de paroi supérieure (680), la partie de paroi inférieure (682), et les deux parties de branches latérales (684) forment une ouverture de paroi (686) dans la paroi avant (100),

où chaque paroi parmi la pluralité de parois avant (100) inclut une pluralité de protubérances (694) configurées pour s'engager avec la pluralité d'ouvertures (696) sur la surface (16) d'un plateau parmi la pluralité de plateaux (12).

14. Système de gestion de présentation de produit selon la revendication 13, comprenant en outre :

deux parties de paroi (671) s'étendant depuis une extrémité opposée de la lèvre (670) sur chaque paroi parmi la pluralité de parois avant (100),
 où chacune des parois avant (100) inclut un logement graphique (692) formé par la partie de paroi inférieure (682), la lèvre (670), et les deux parties de paroi (671).

15. Système de gestion de présentation de produit selon la revendication 14, dans lequel un côté de chaque plateau parmi la pluralité de plateaux (12) est positionné de manière adjacente à un côté d'un autre plateau parmi la pluralité de plateaux (12) sur une tablette et dans lequel les logements graphiques (692) de chacune des parois avant (100) forment une bande quasi continue (706) pour message publicitaire.

FIG.1

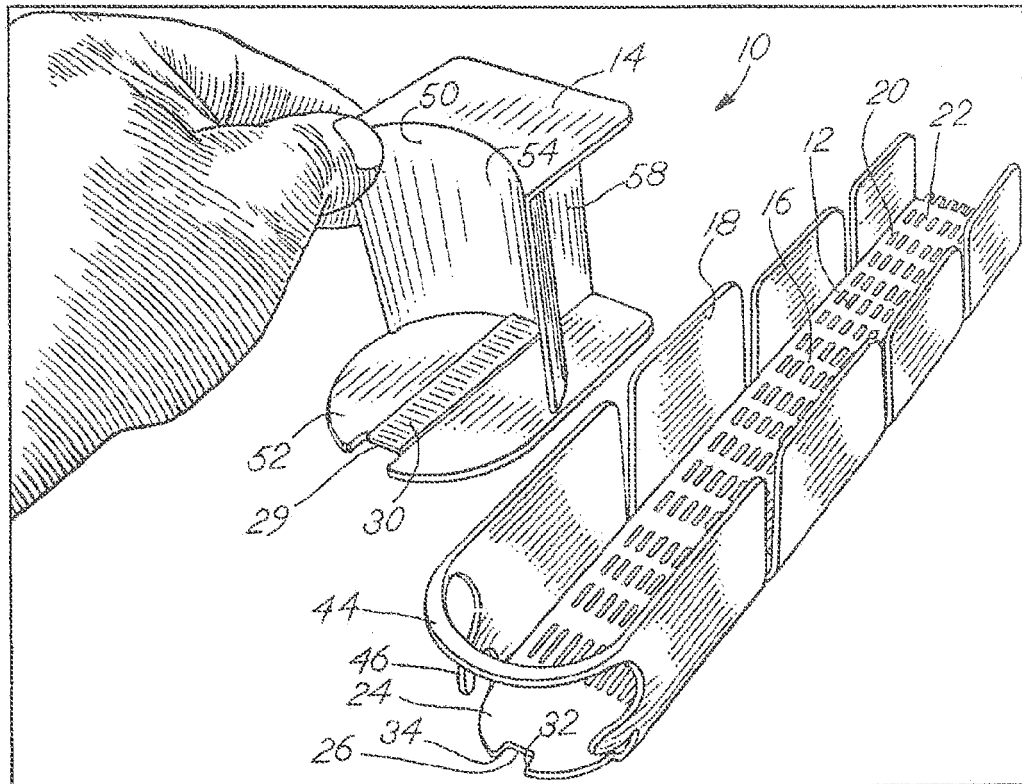
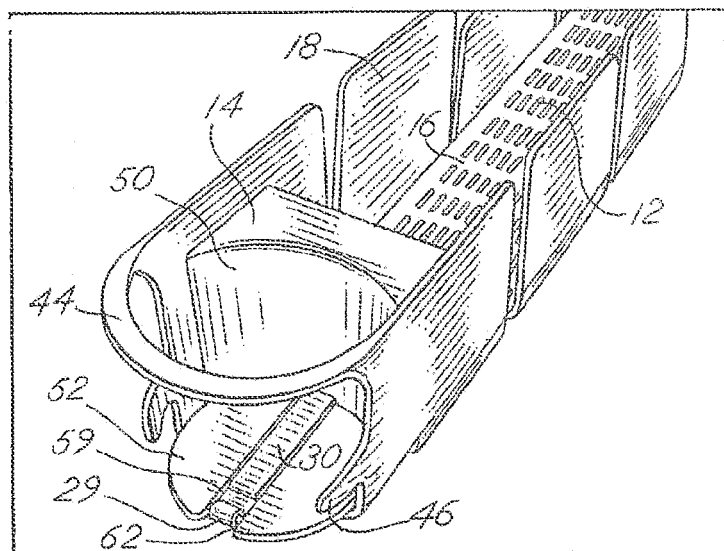
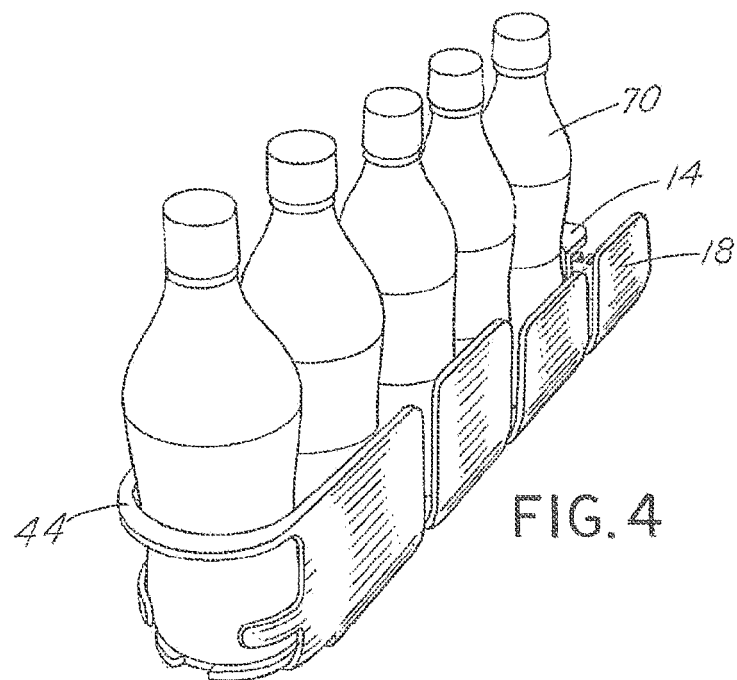
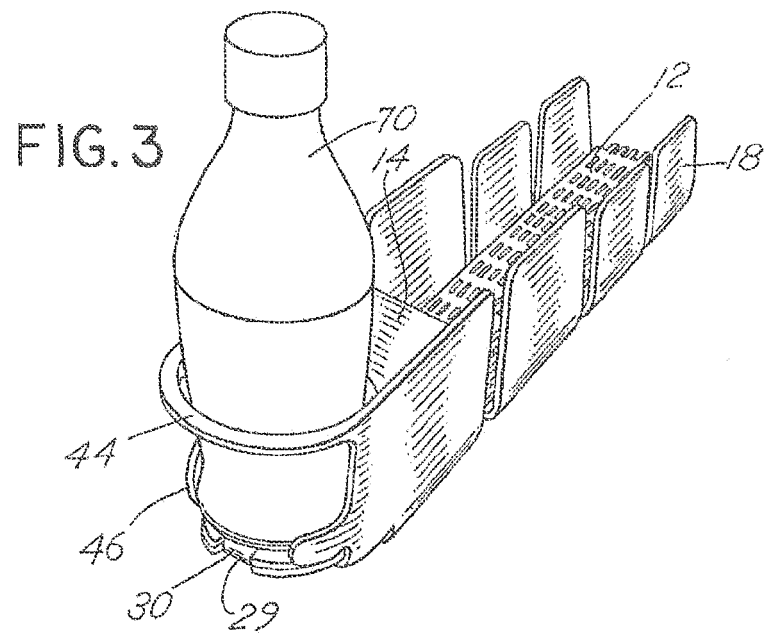
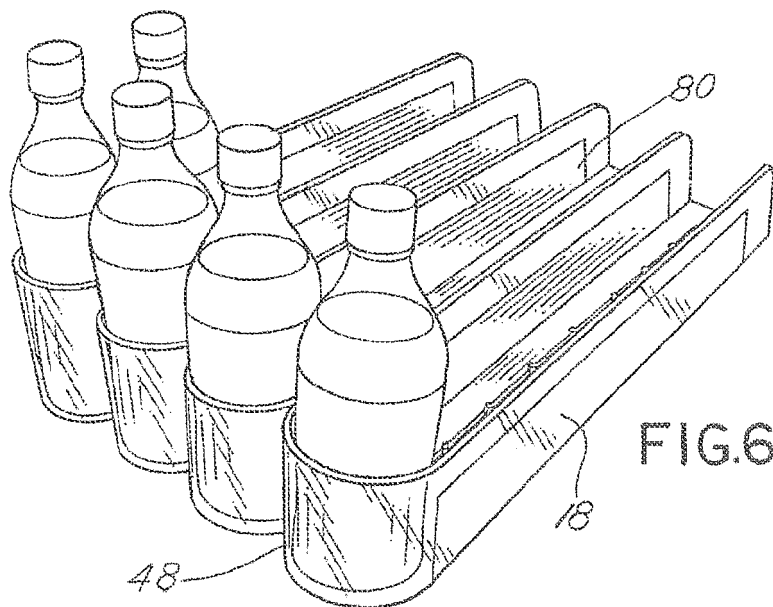
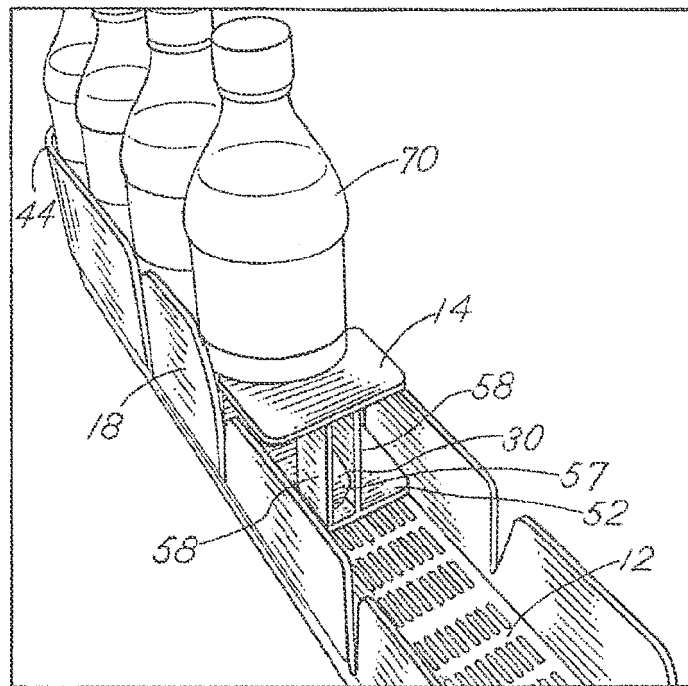


FIG.2







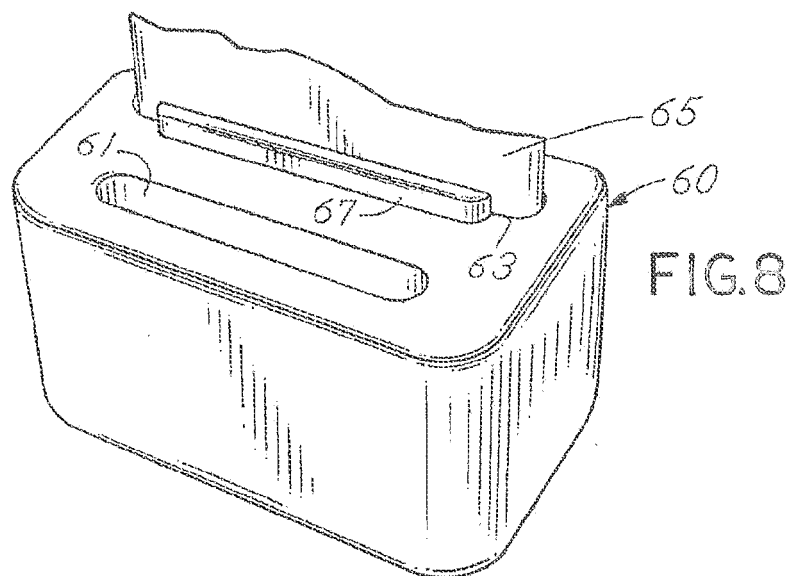
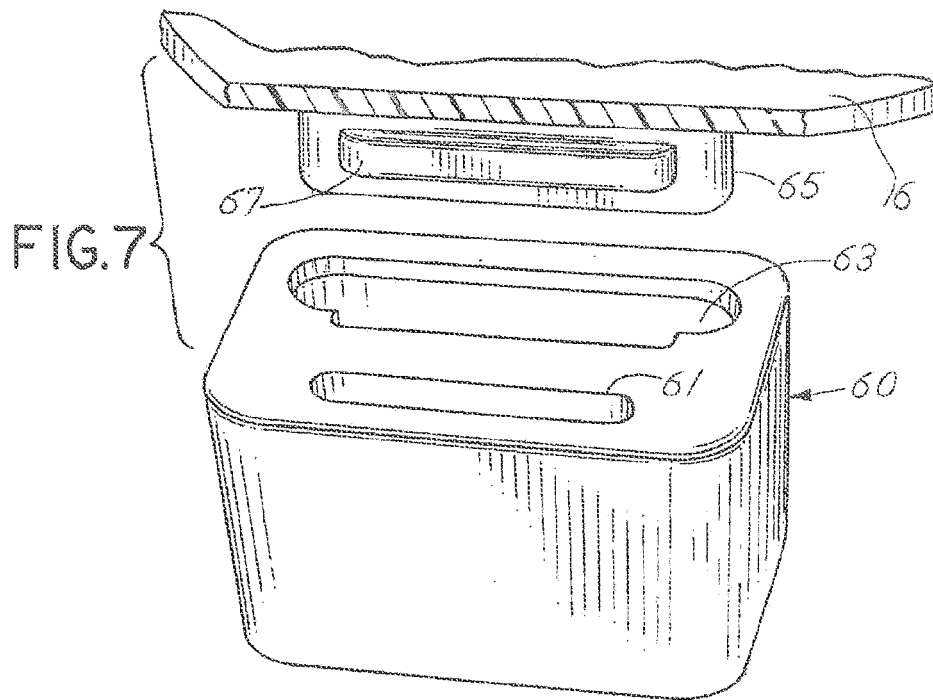


FIG.9

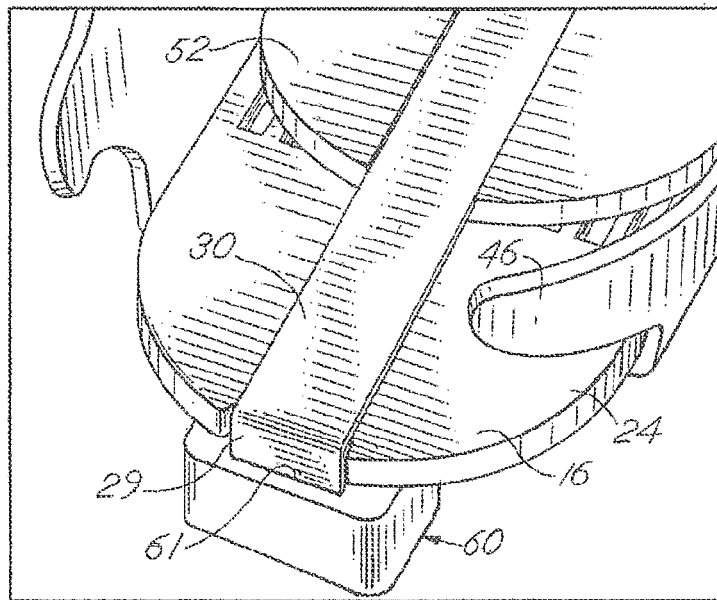
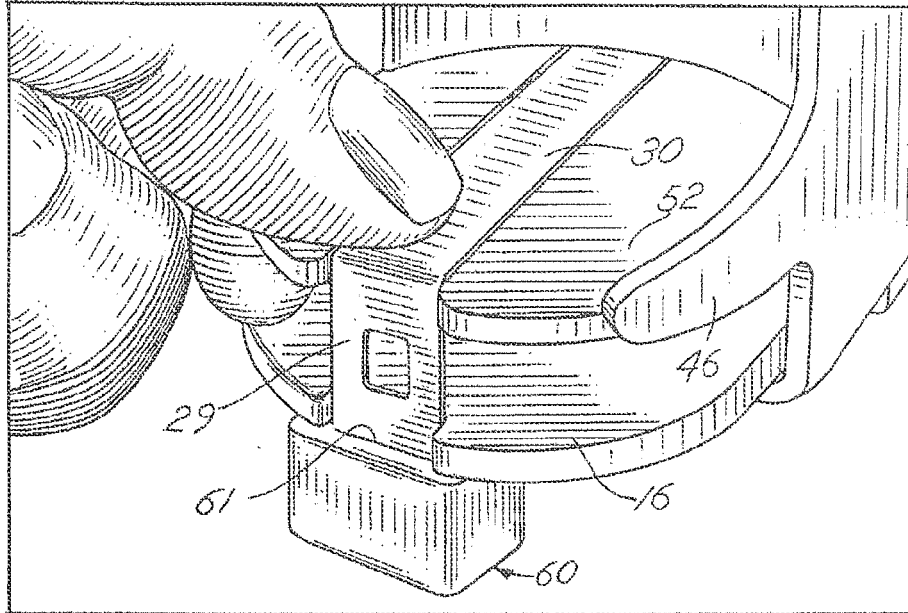


FIG.10

FIG.11

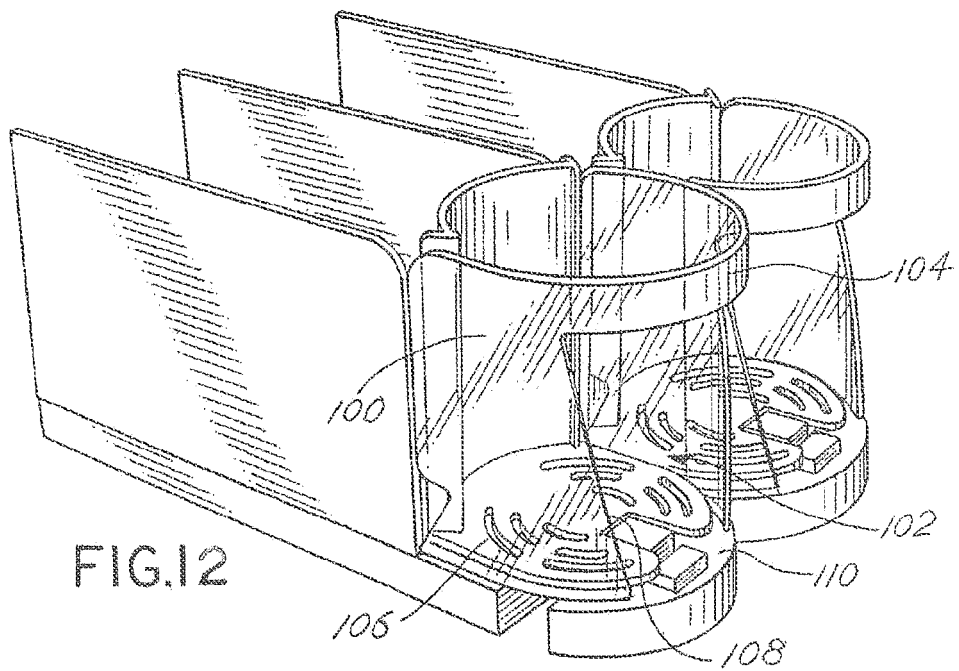
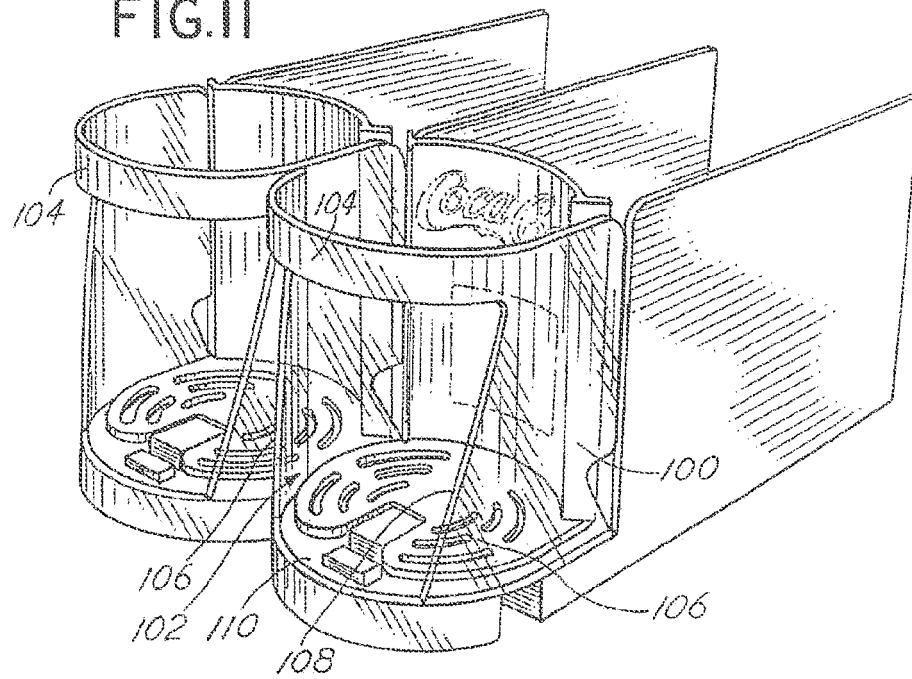


FIG.12

FIG.13

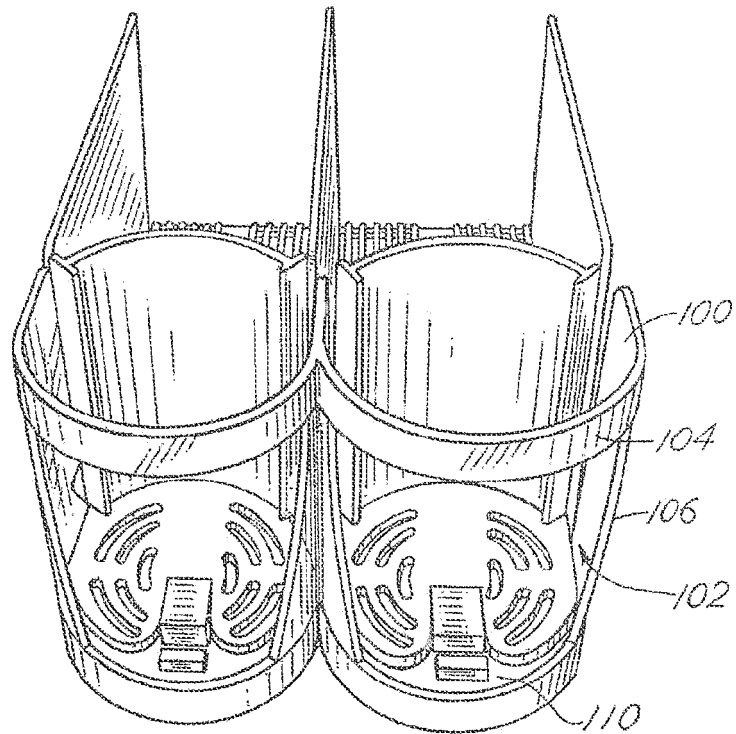


FIG.14

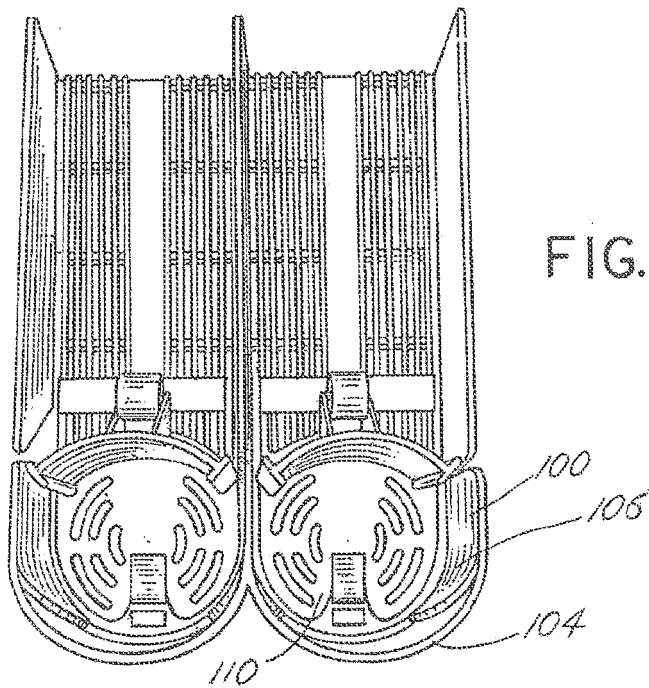


FIG.15

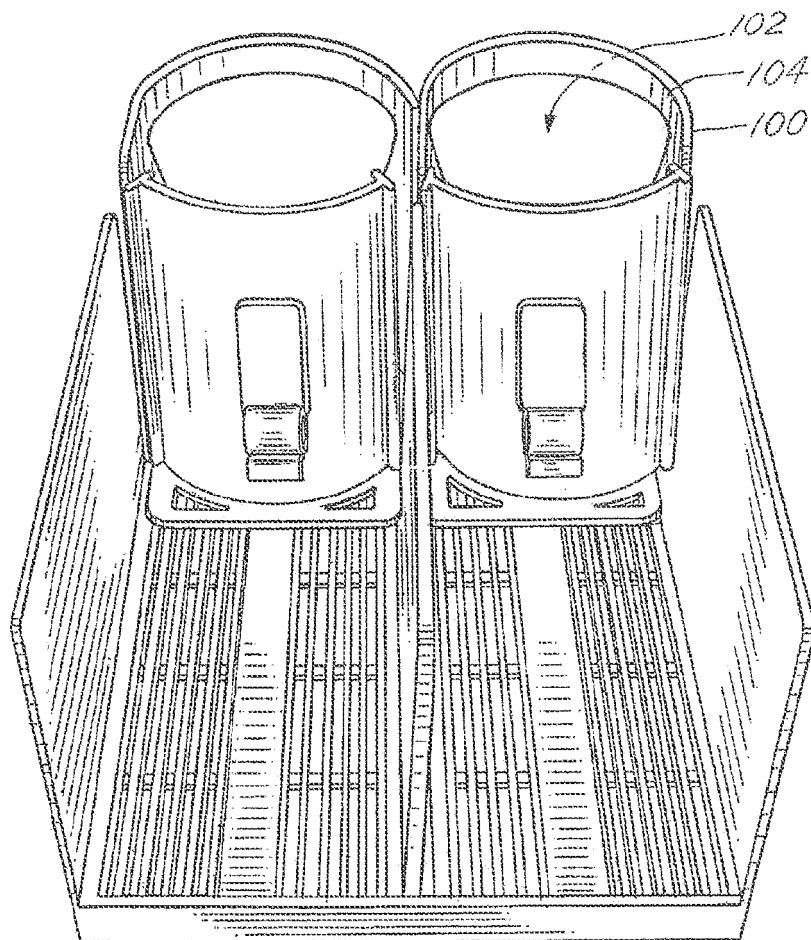


FIG.16

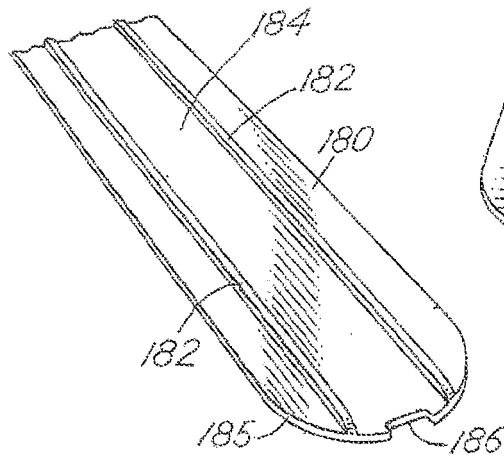


FIG.17

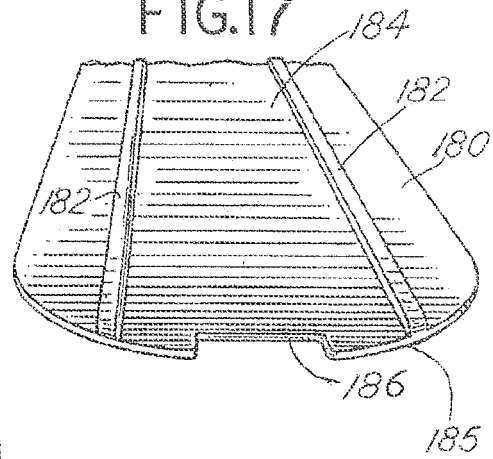


FIG.18

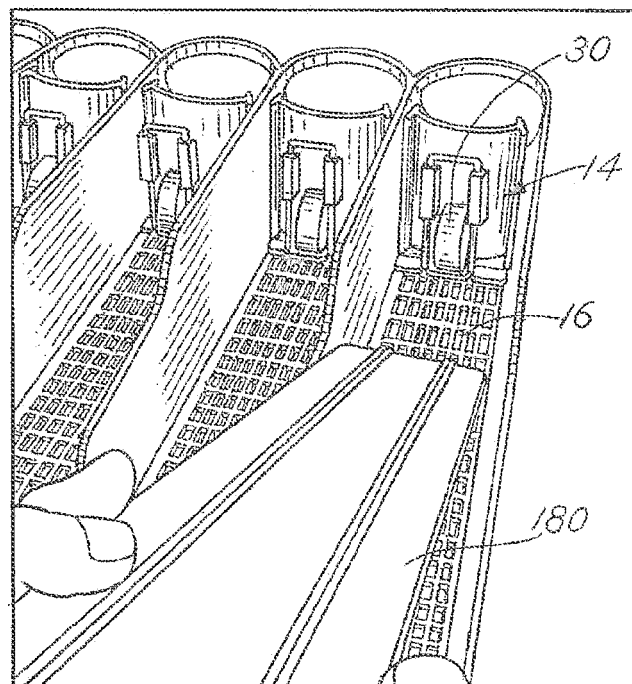


FIG.19

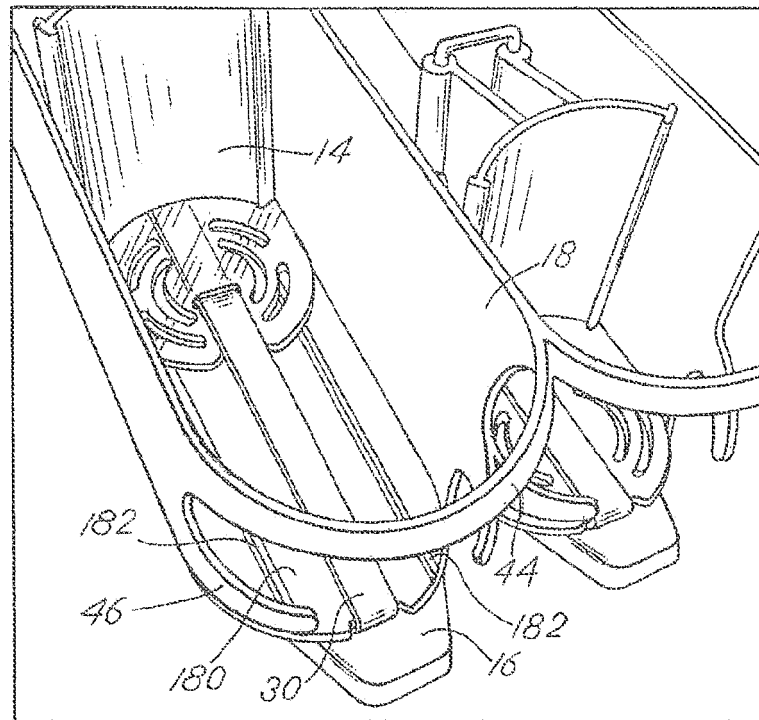


FIG.20

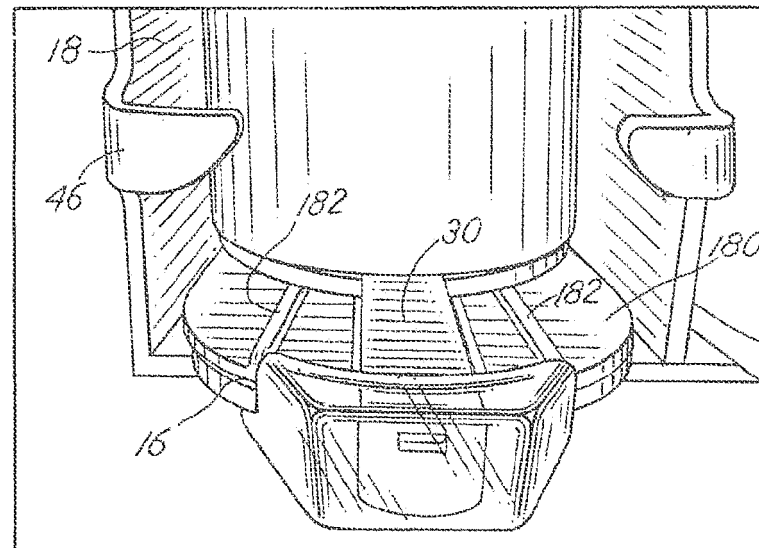


FIG.21

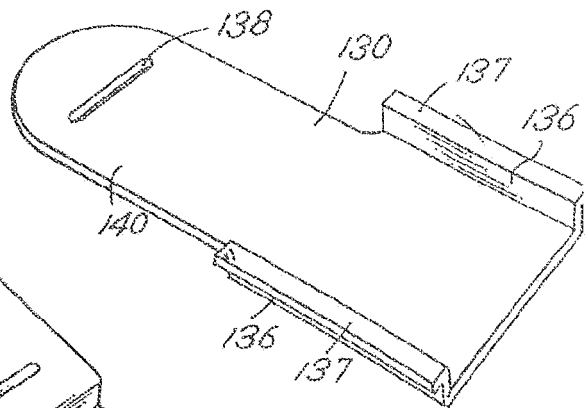
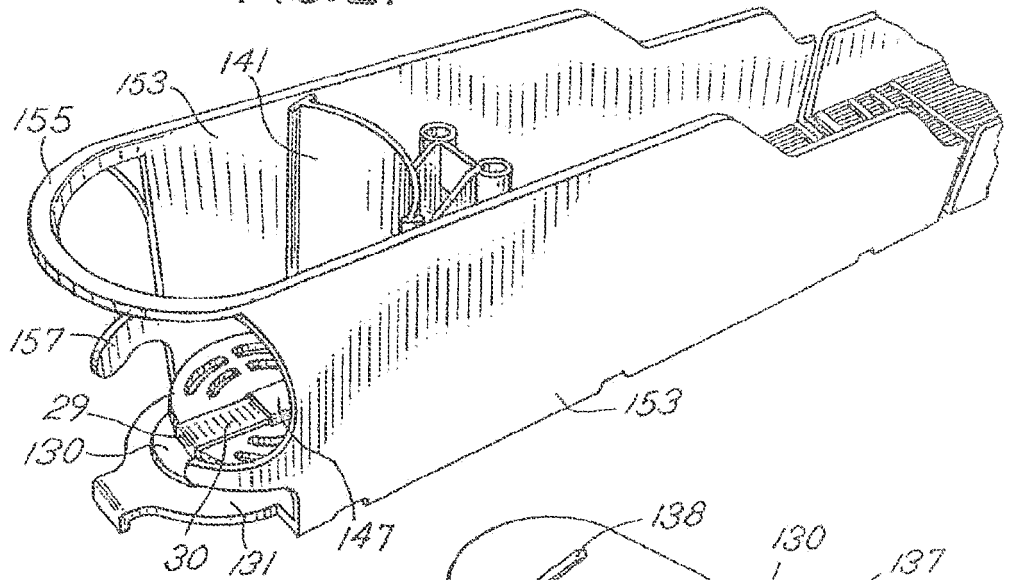


FIG.22

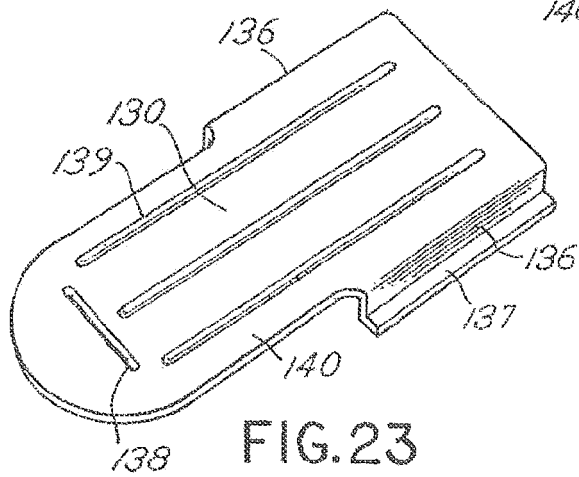


FIG.23

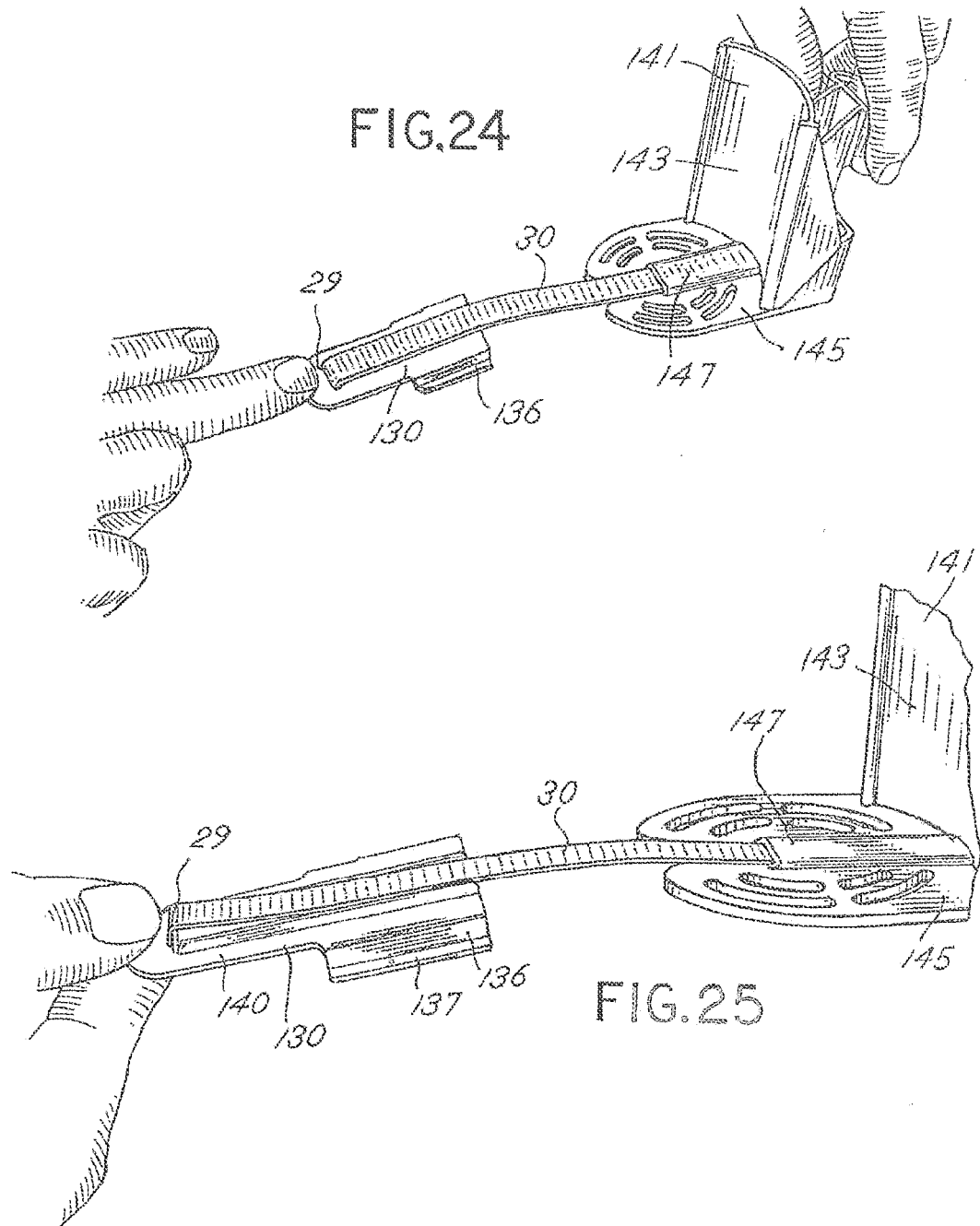


FIG.26

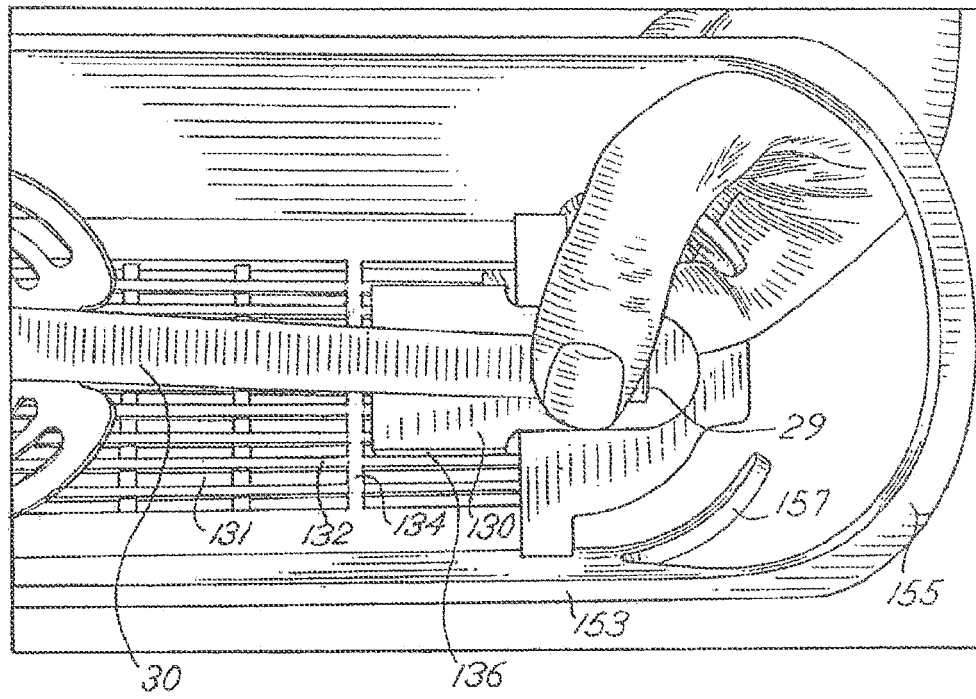
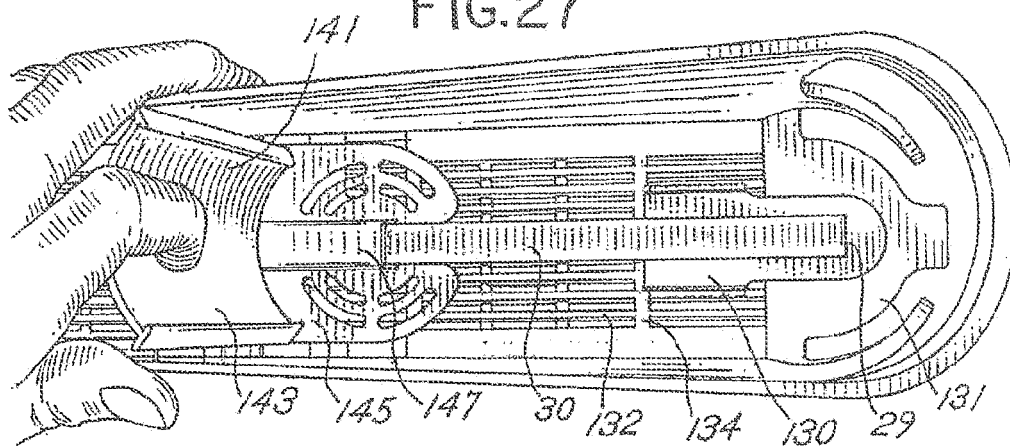


FIG.27



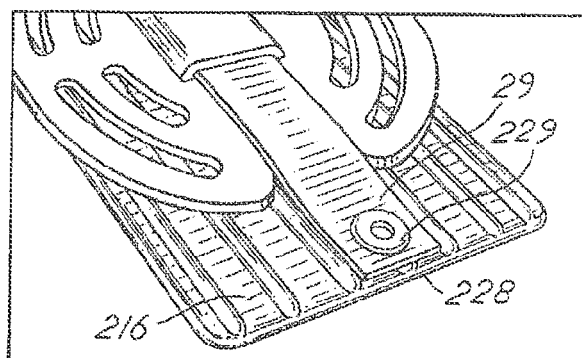
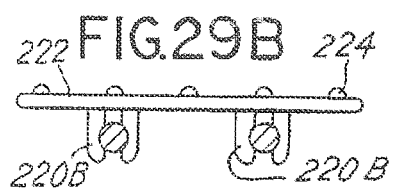
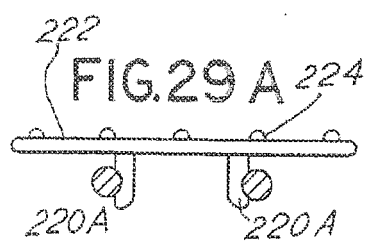
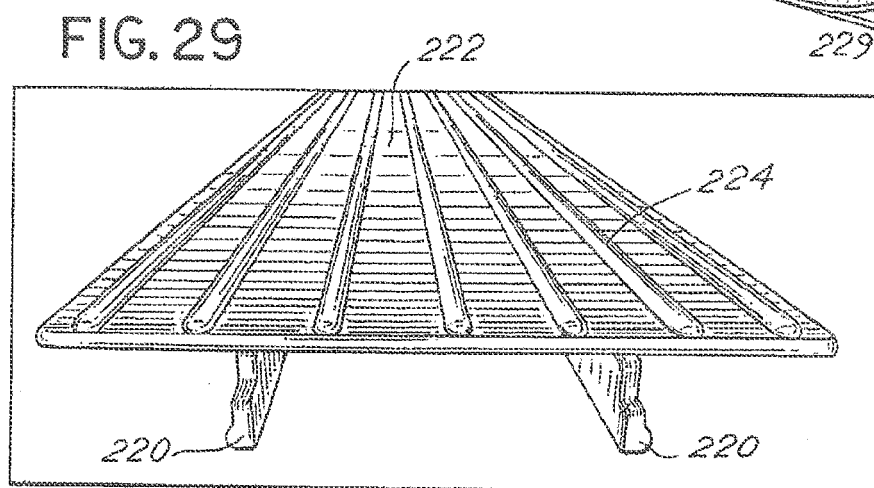
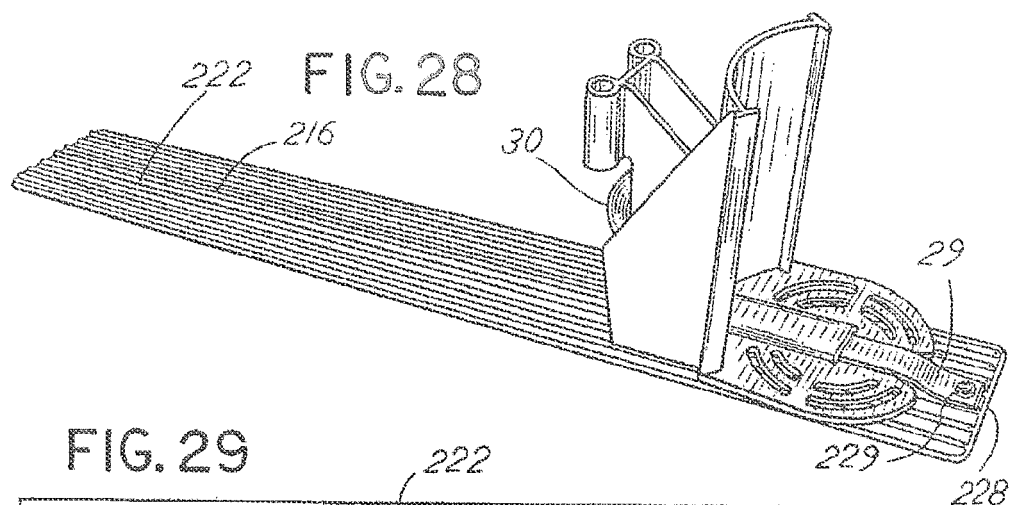


FIG.31

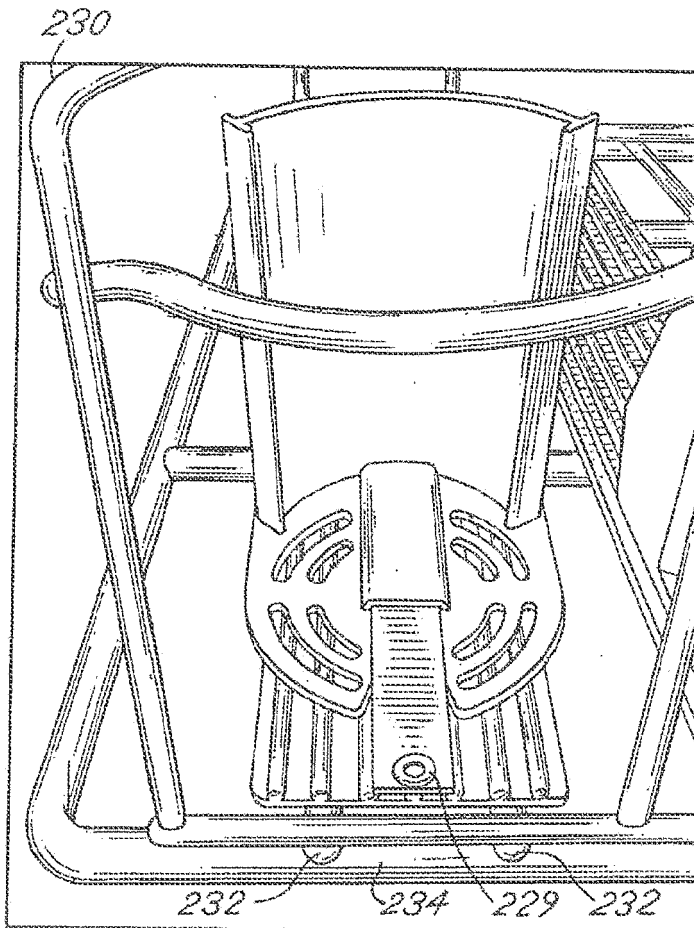
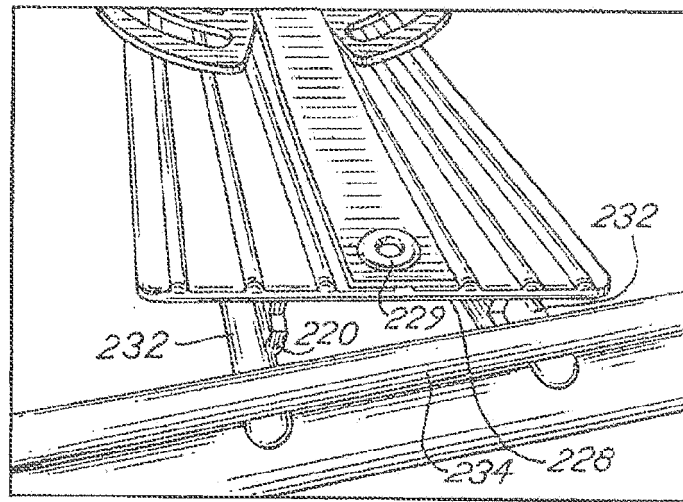


FIG.32

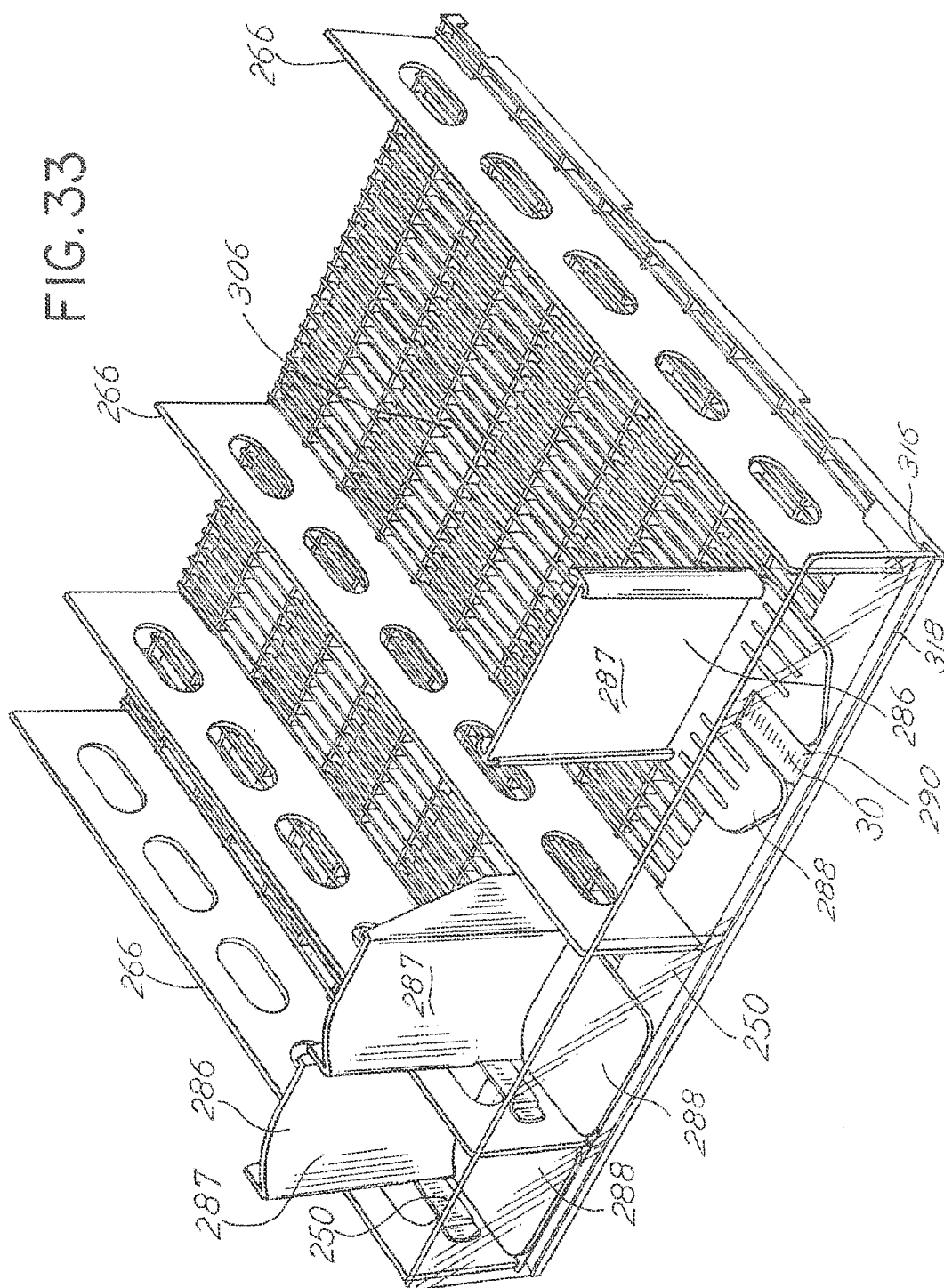

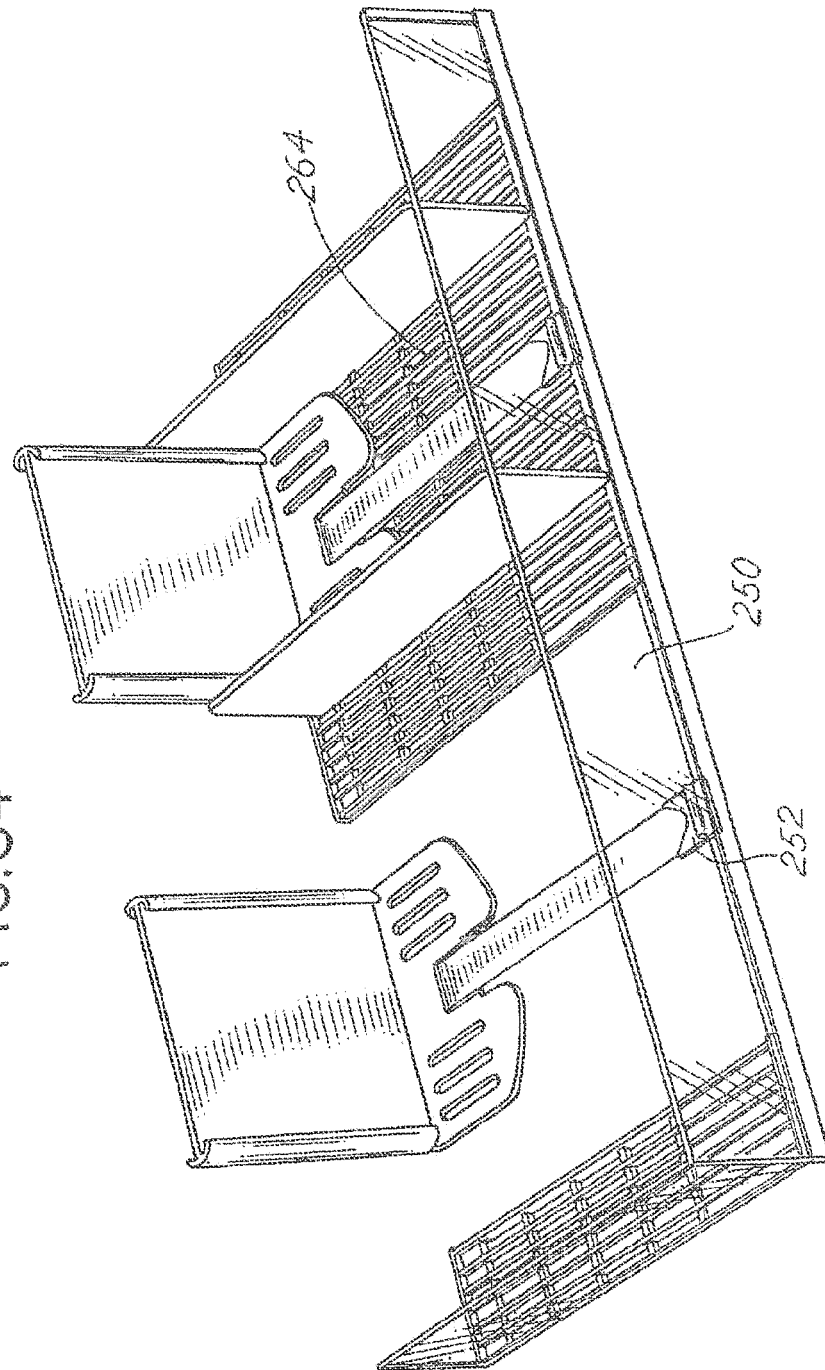
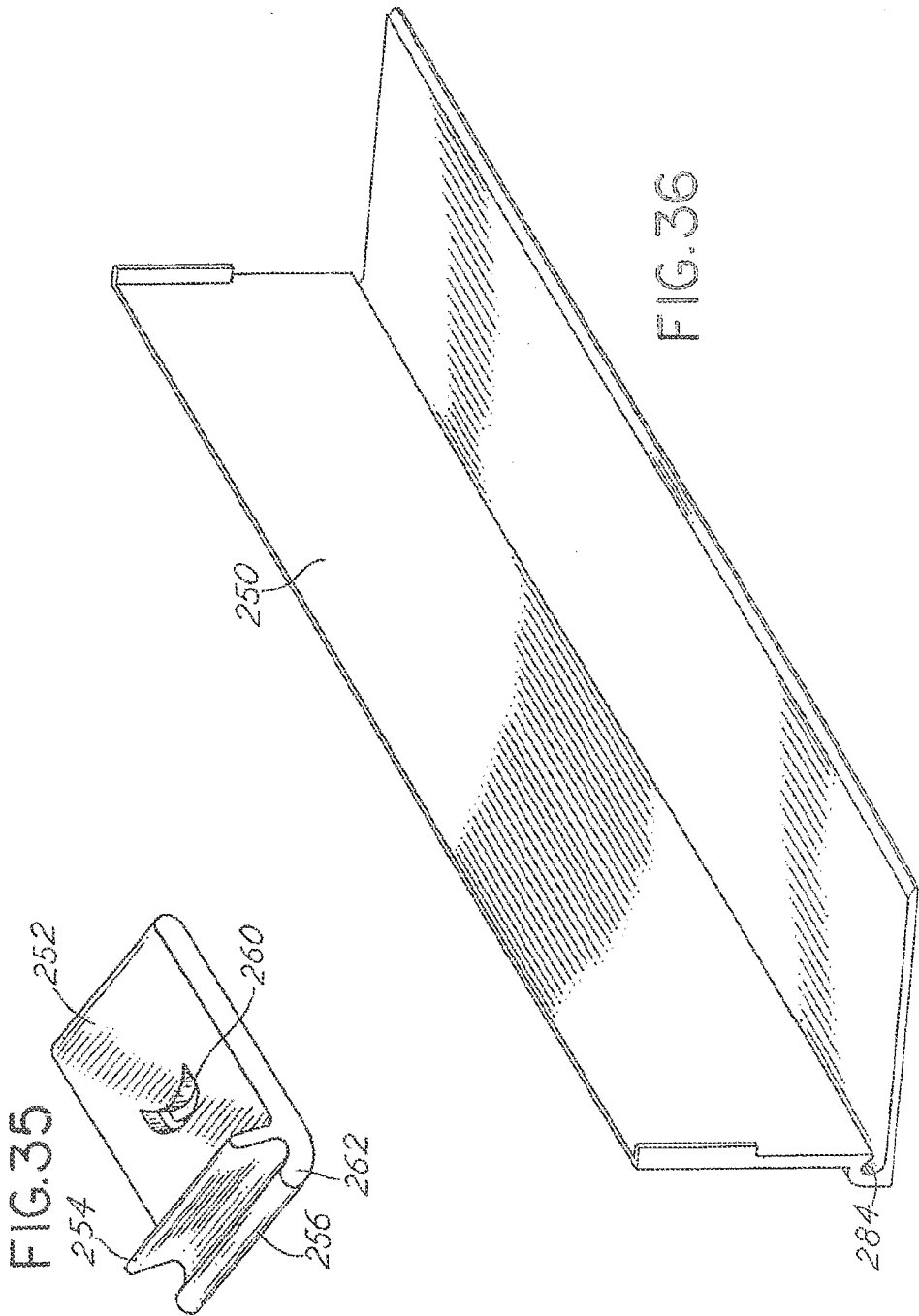
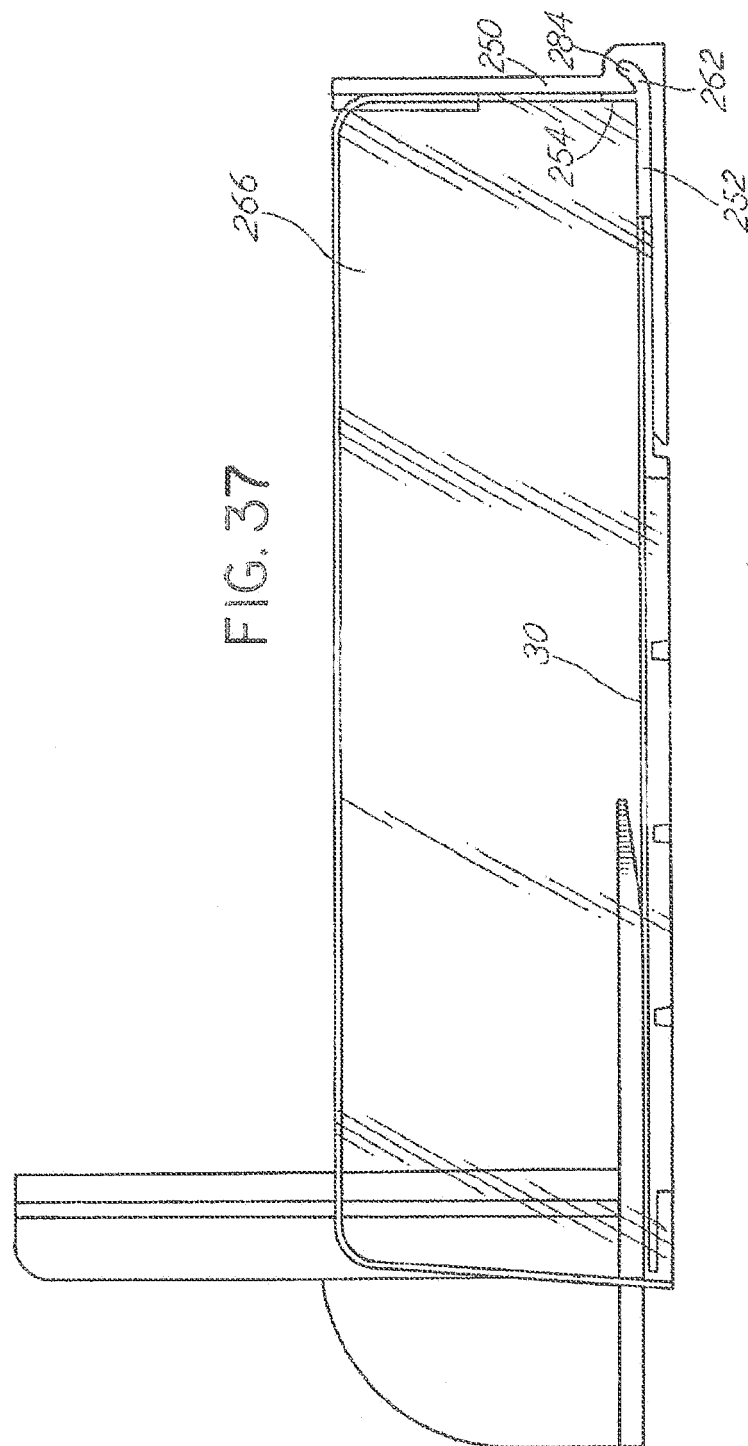
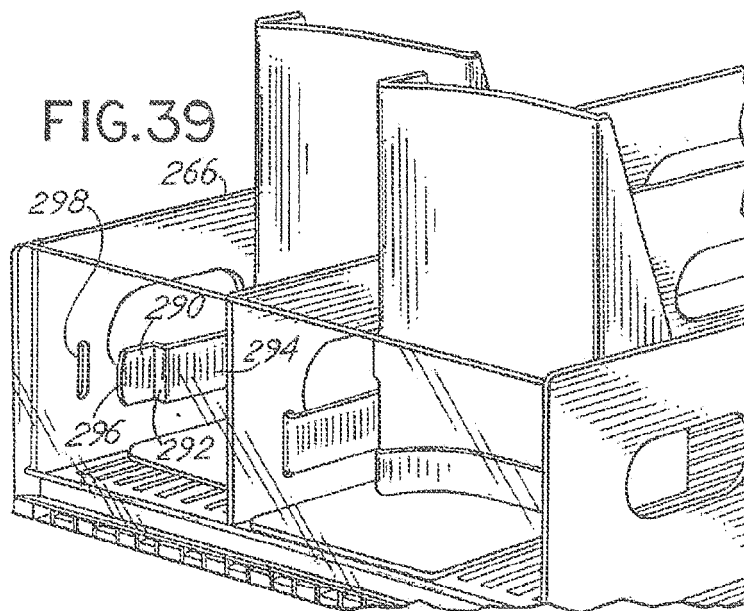
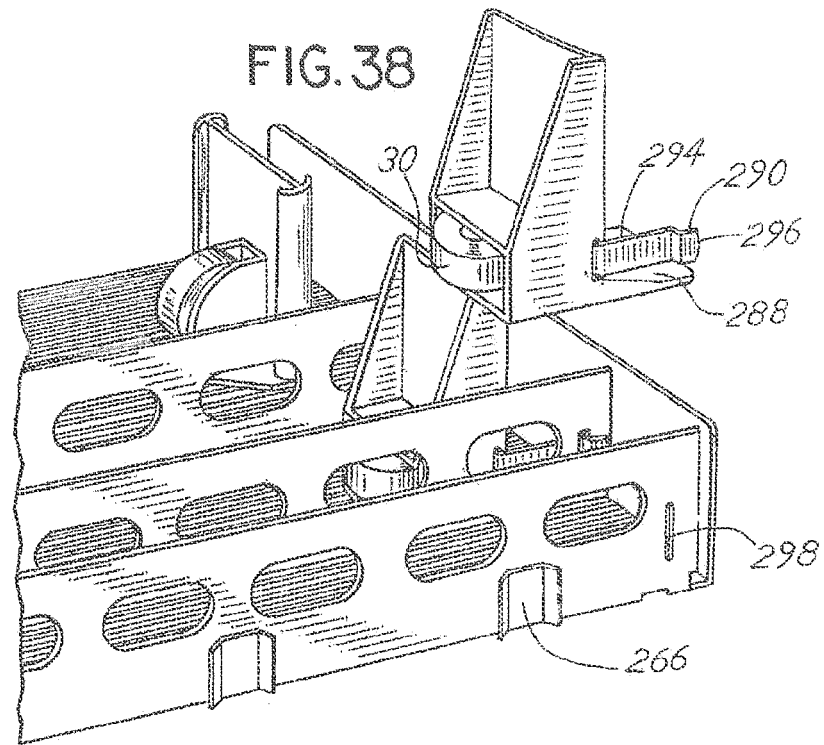


FIG. 34









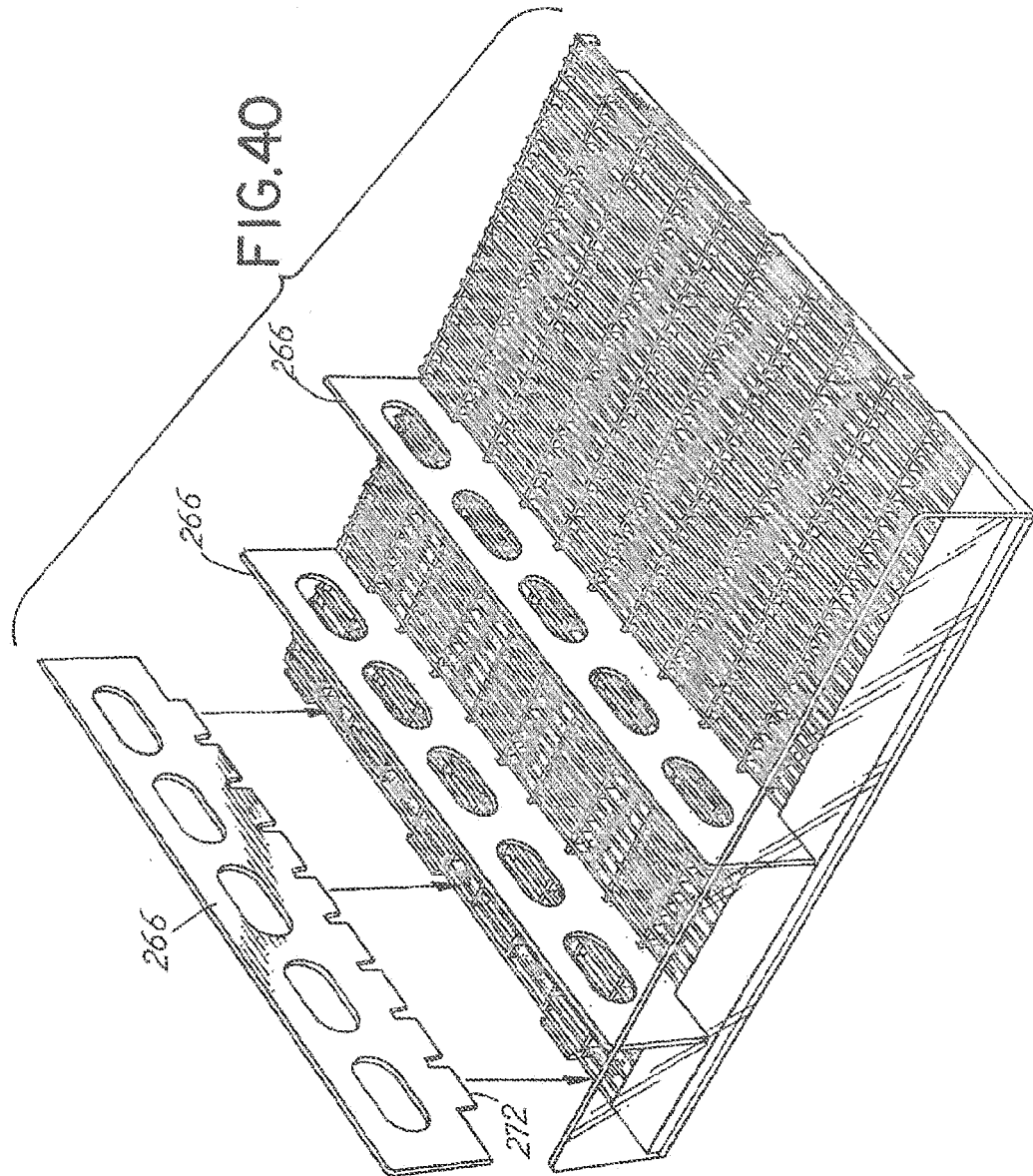


FIG.4IA

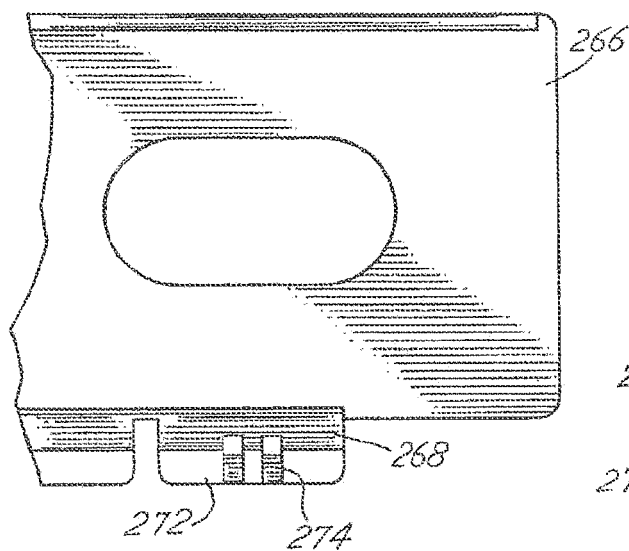


FIG.4ID

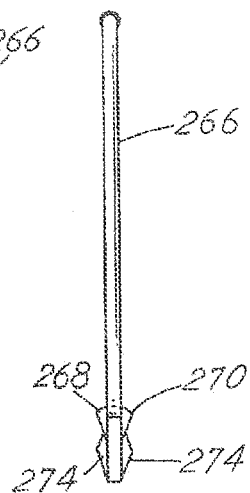
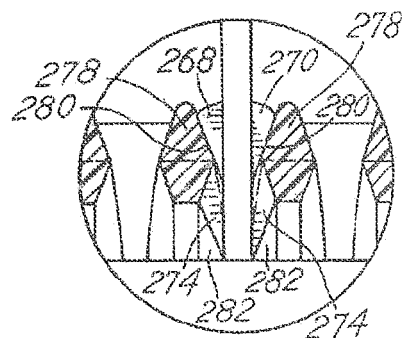
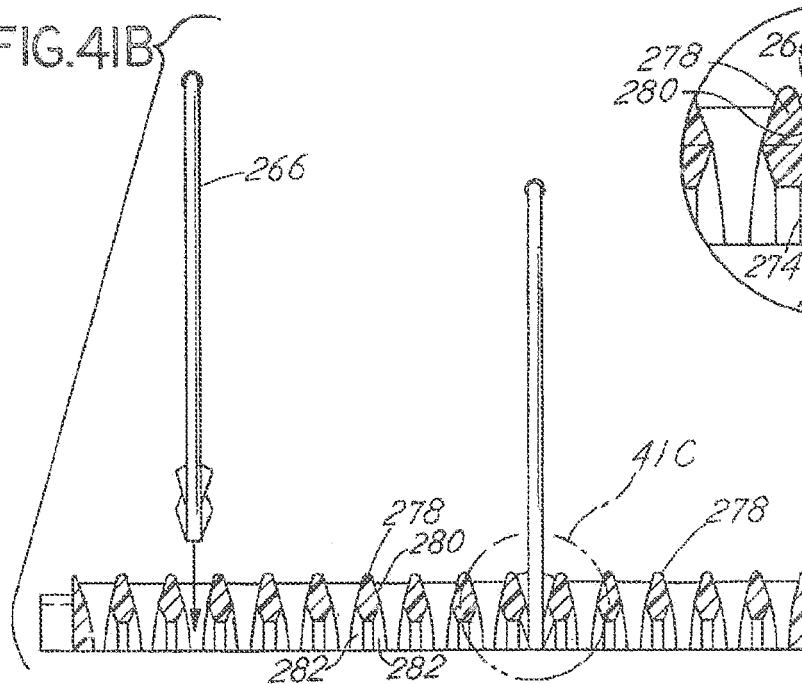
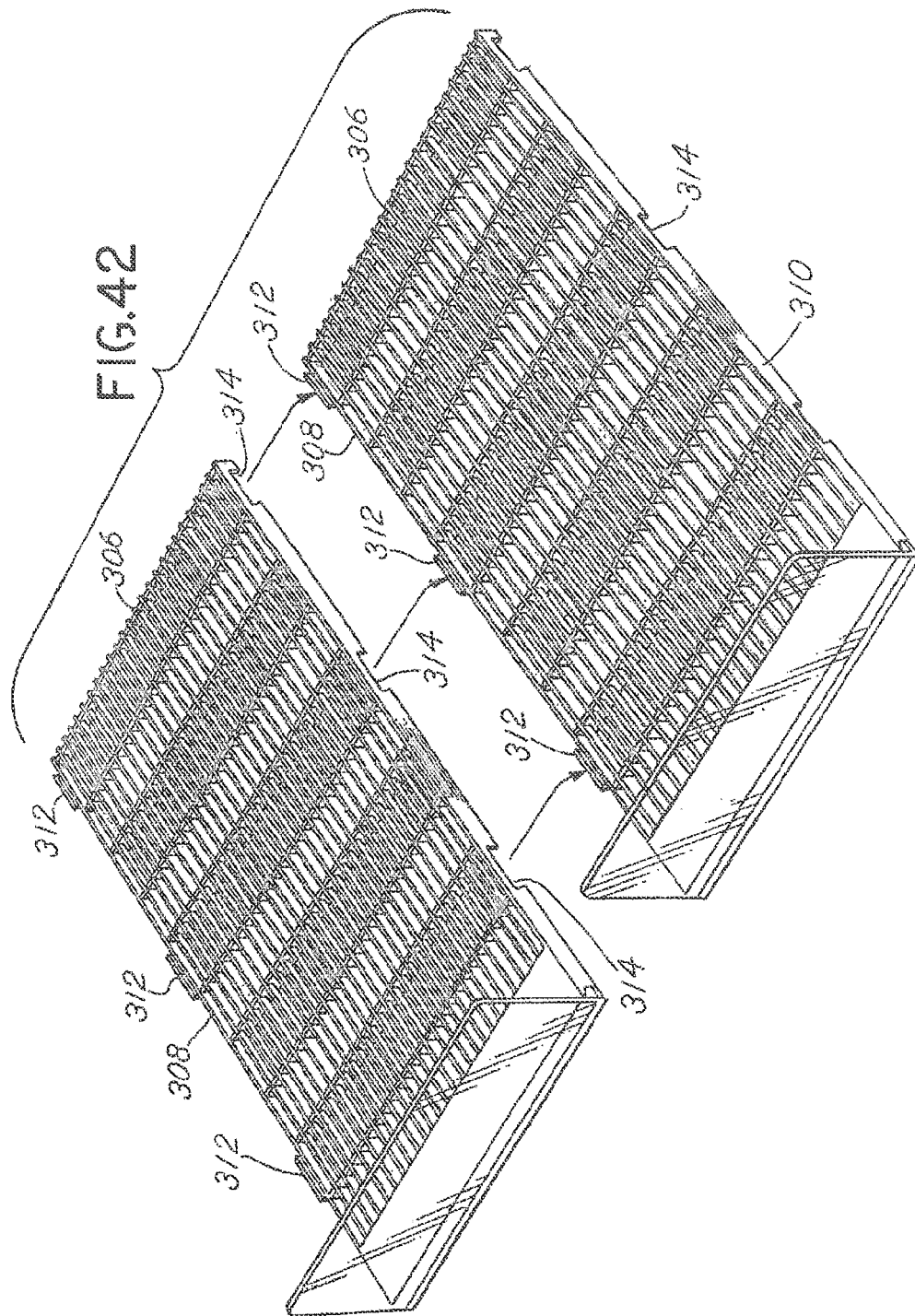
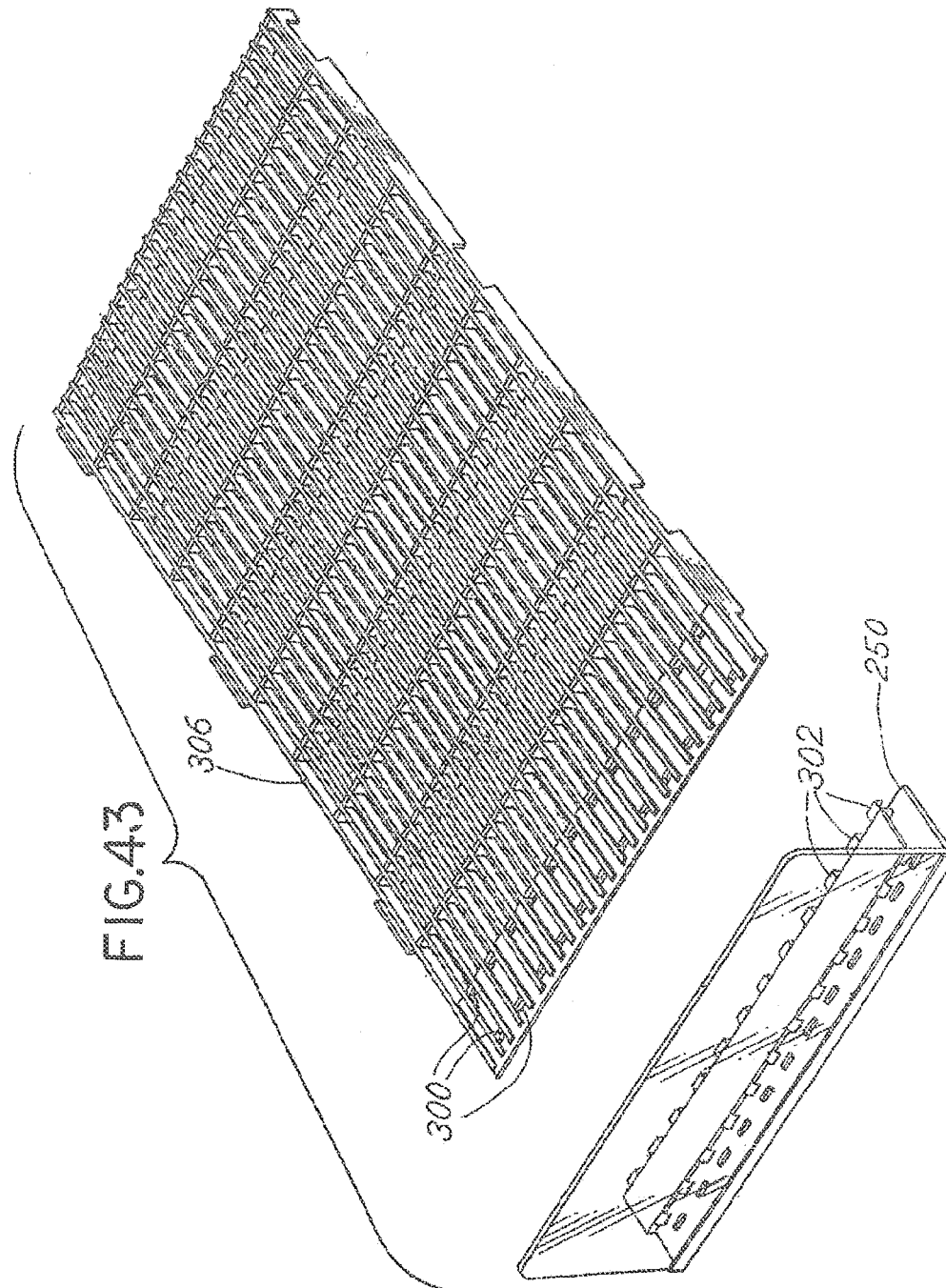


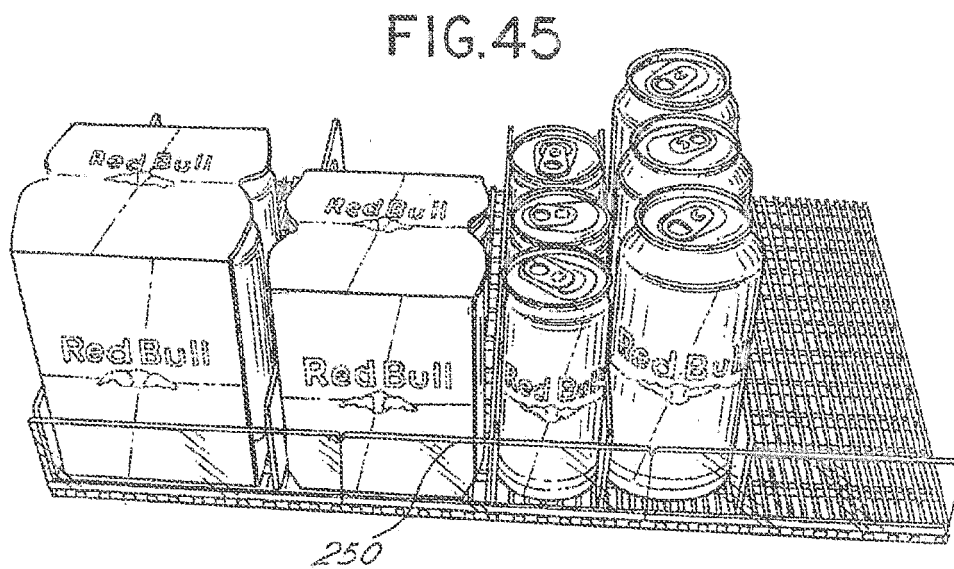
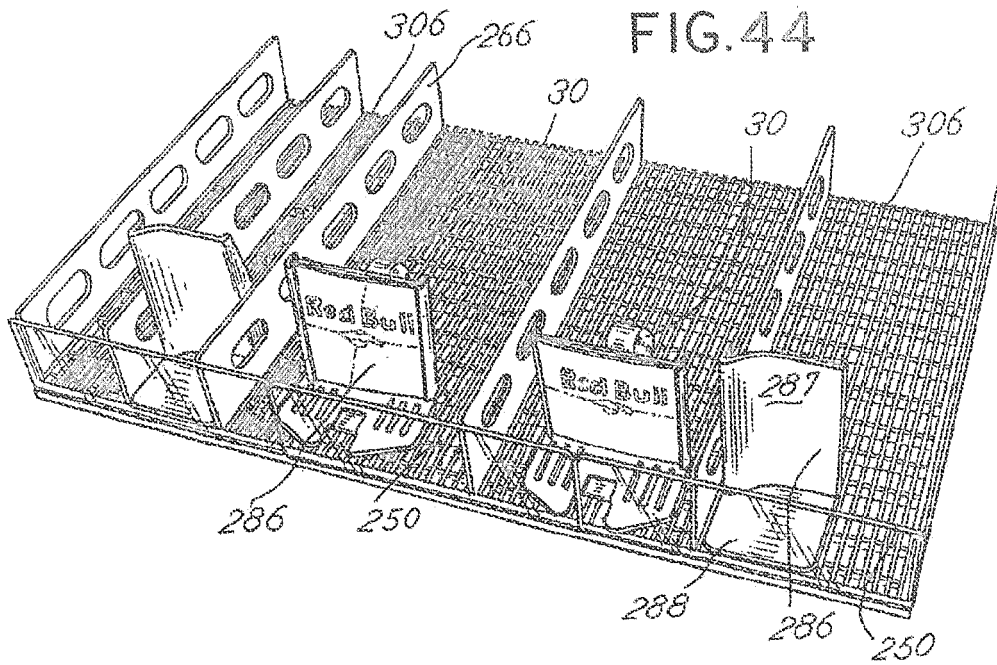
FIG.4IC

FIG.4IB









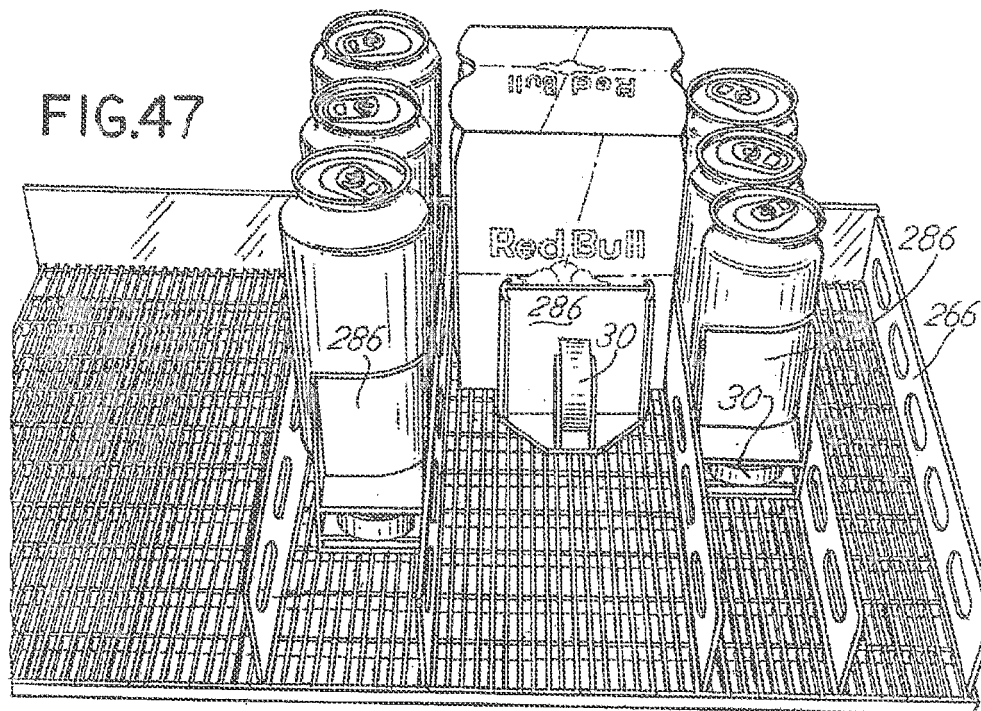
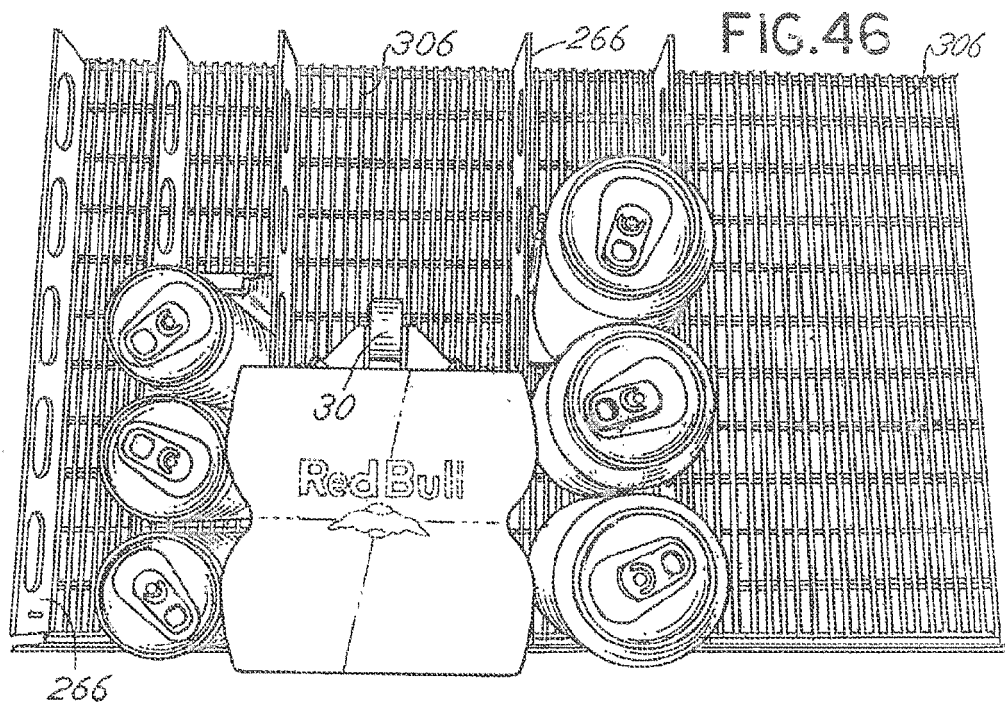


FIG.48

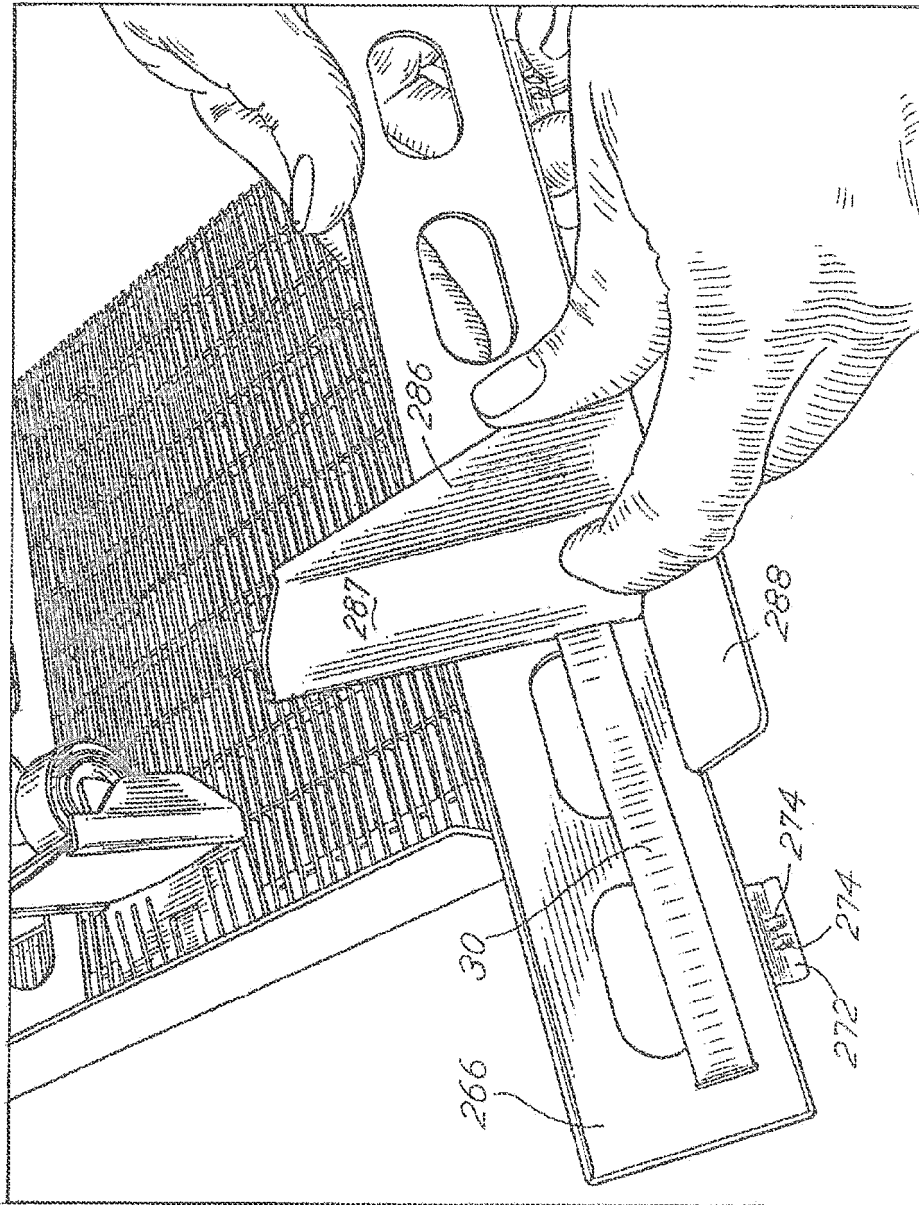
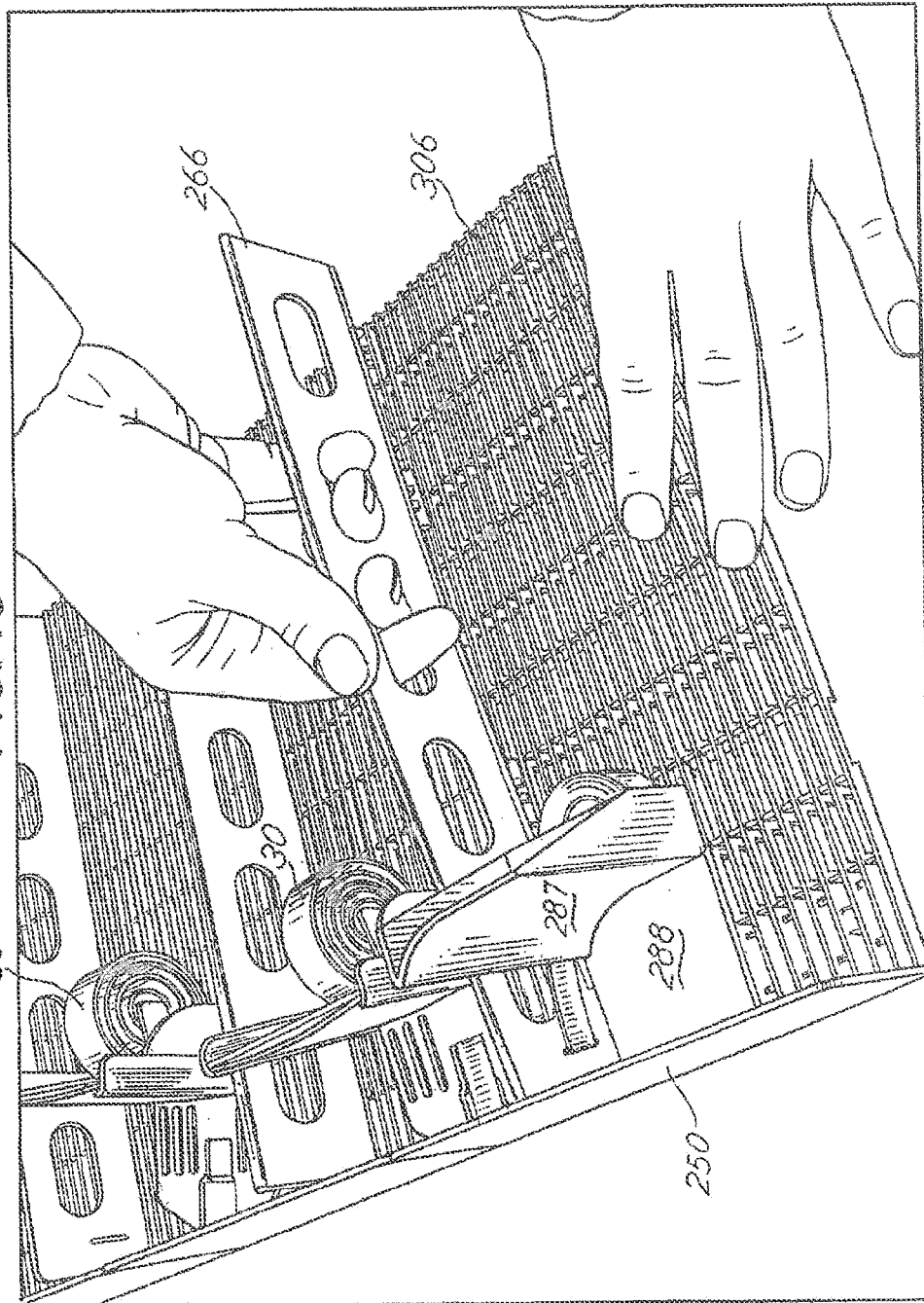
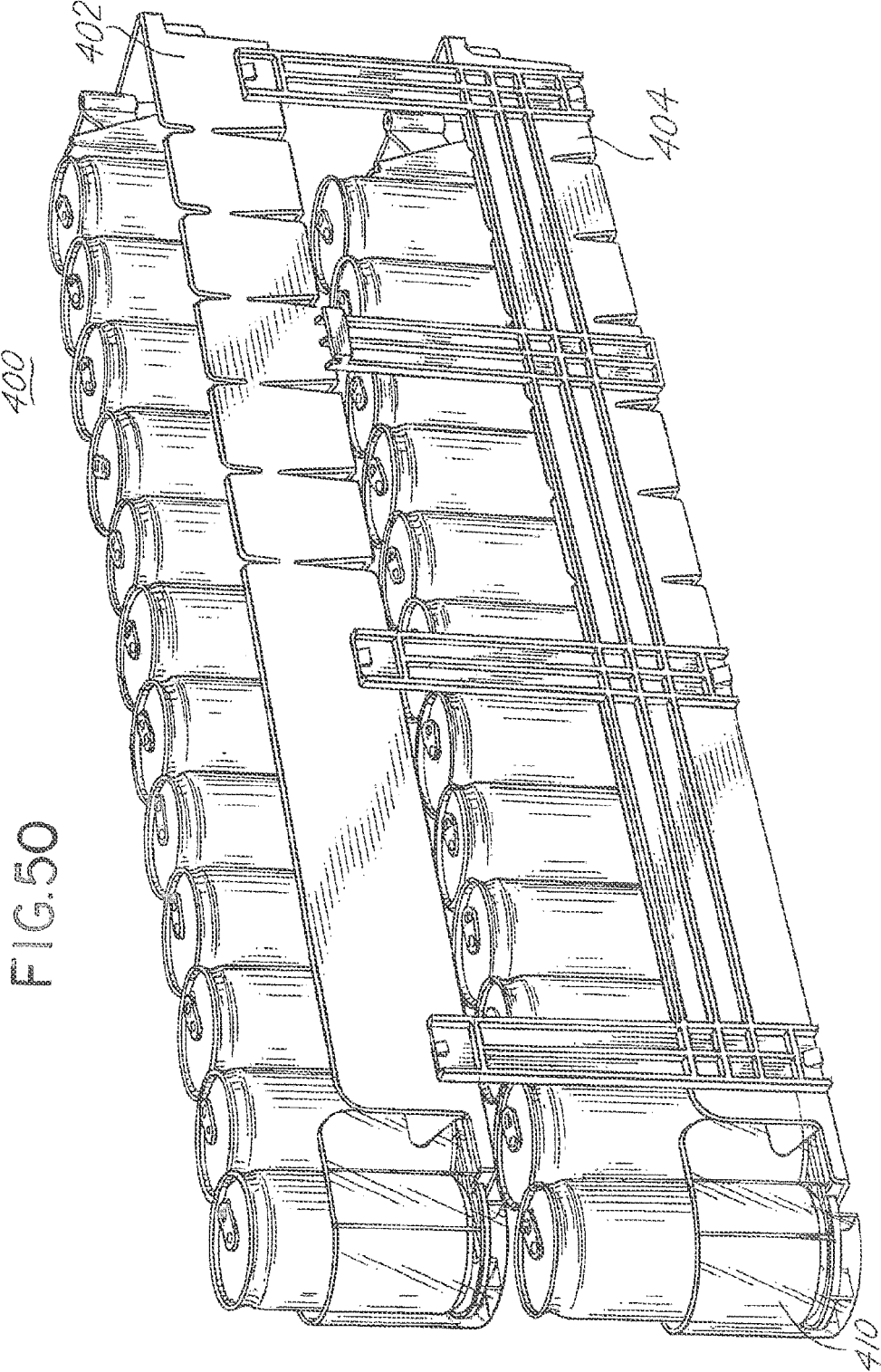
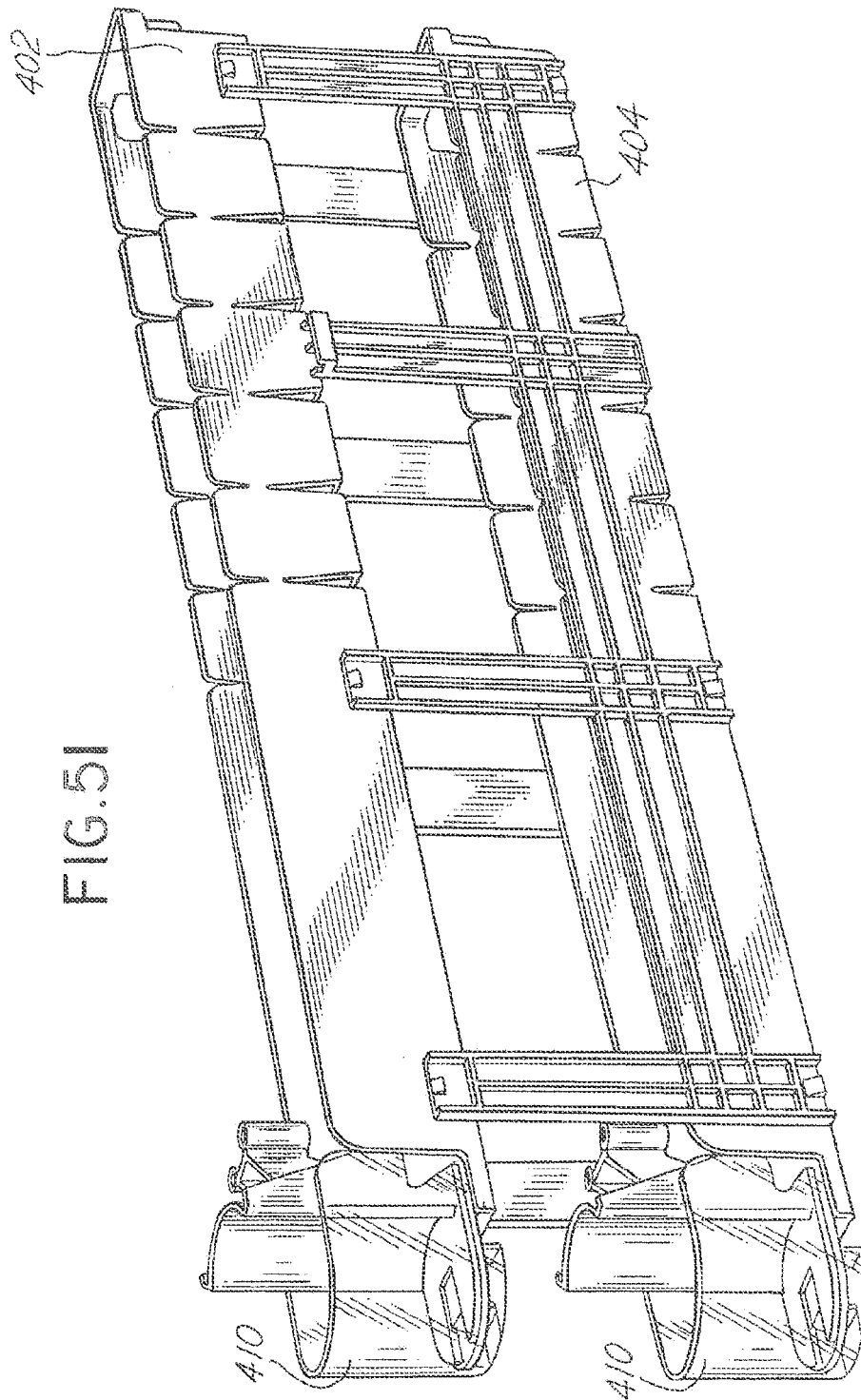


FIG. 49







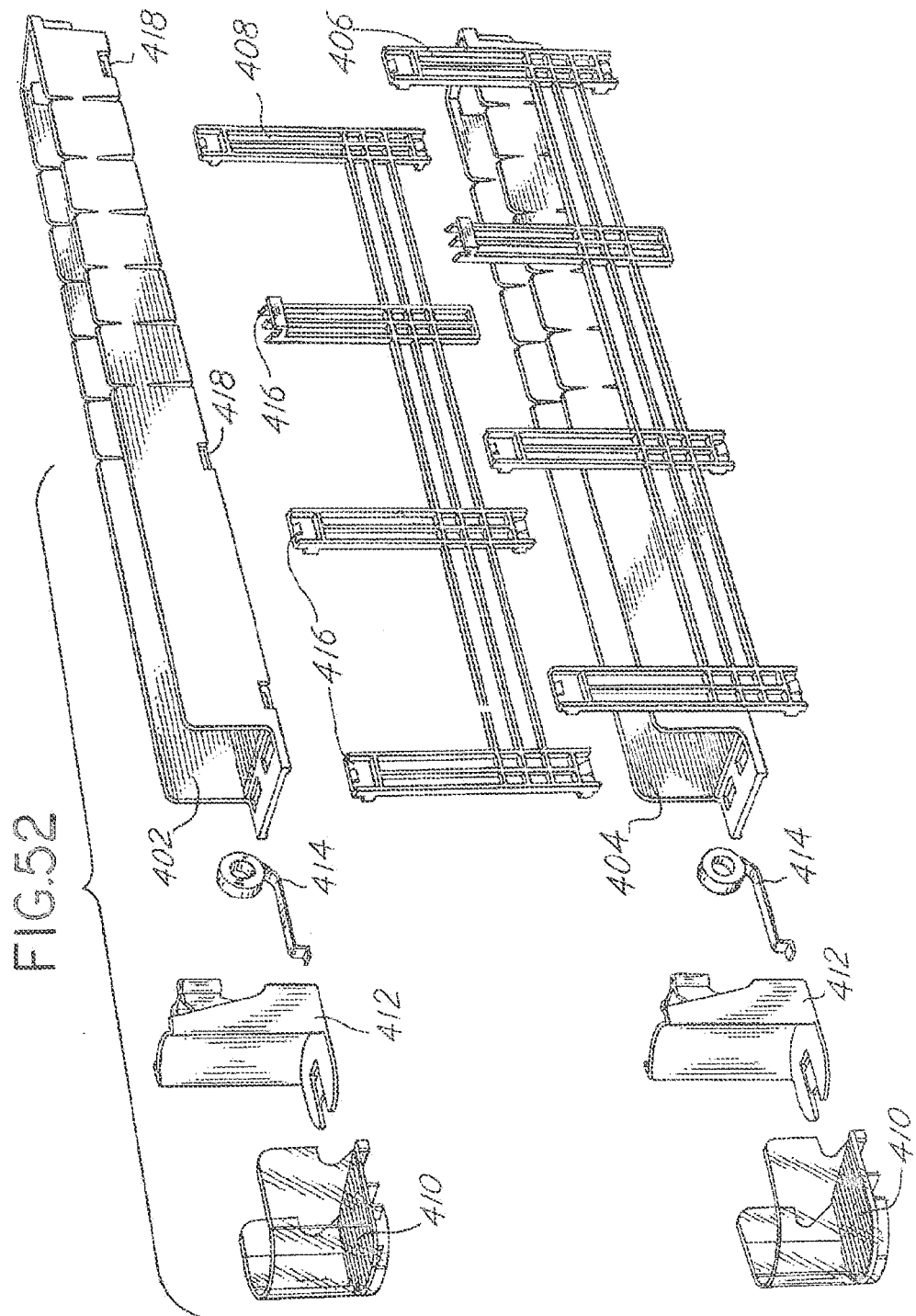


FIG. 53

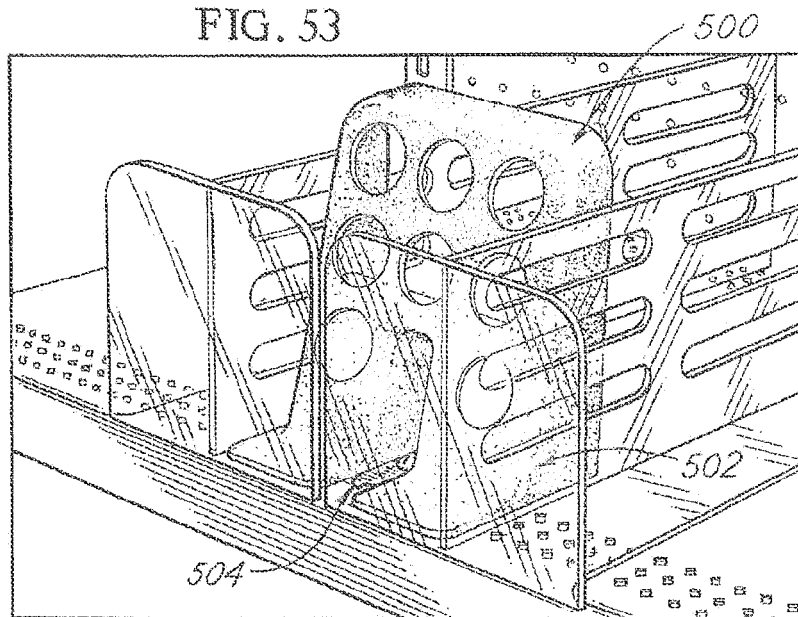


FIG. 54

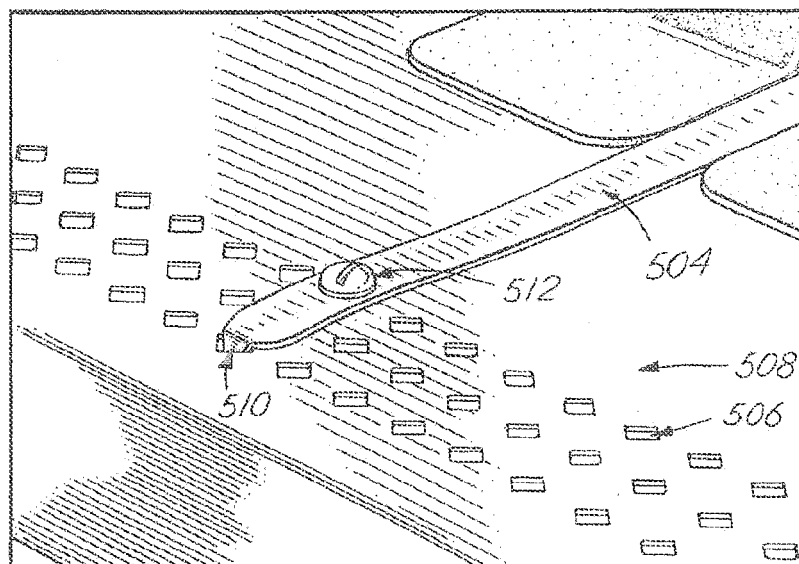


FIG. 55

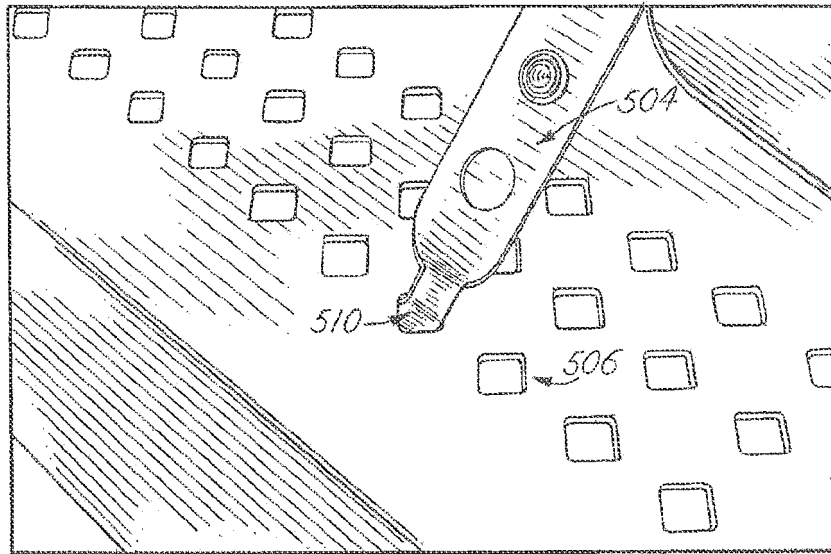


FIG. 56

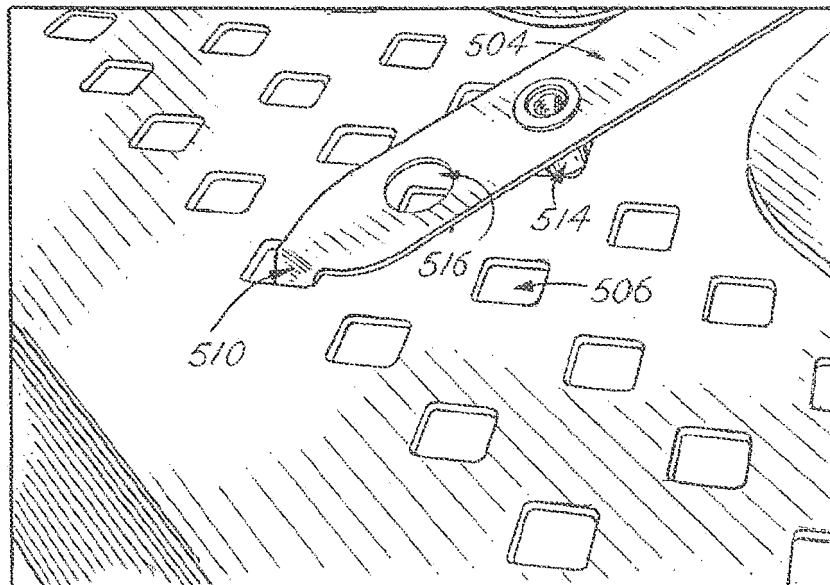
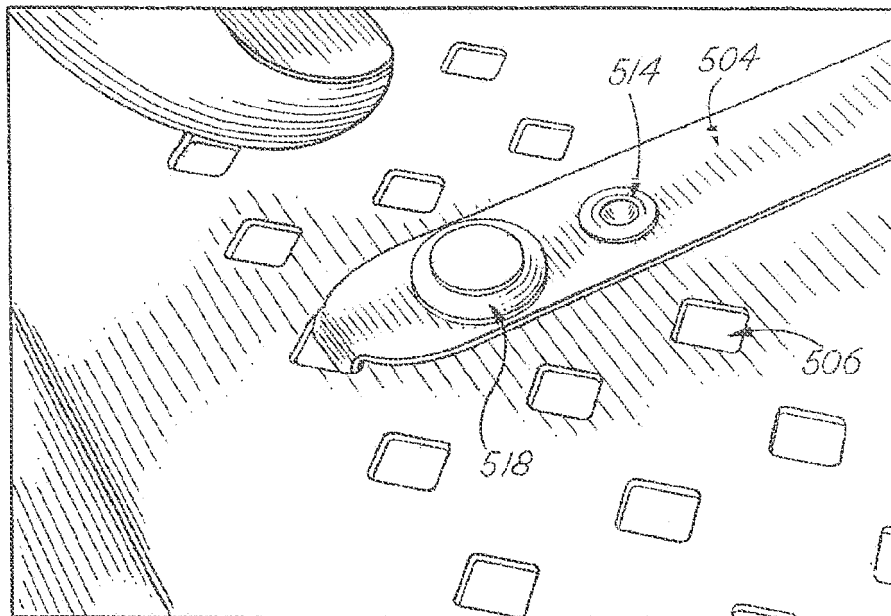


FIG. 57



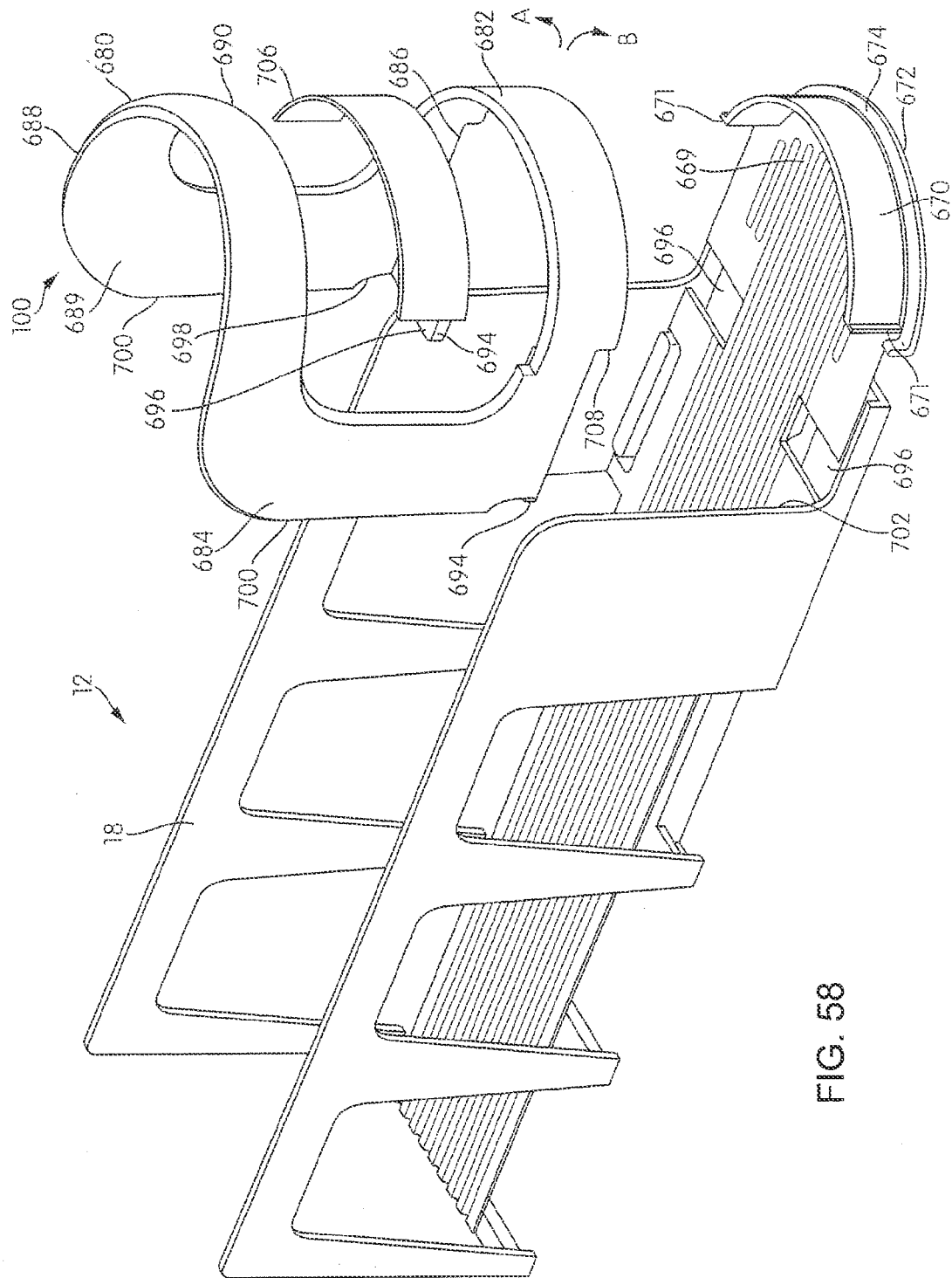


FIG. 58

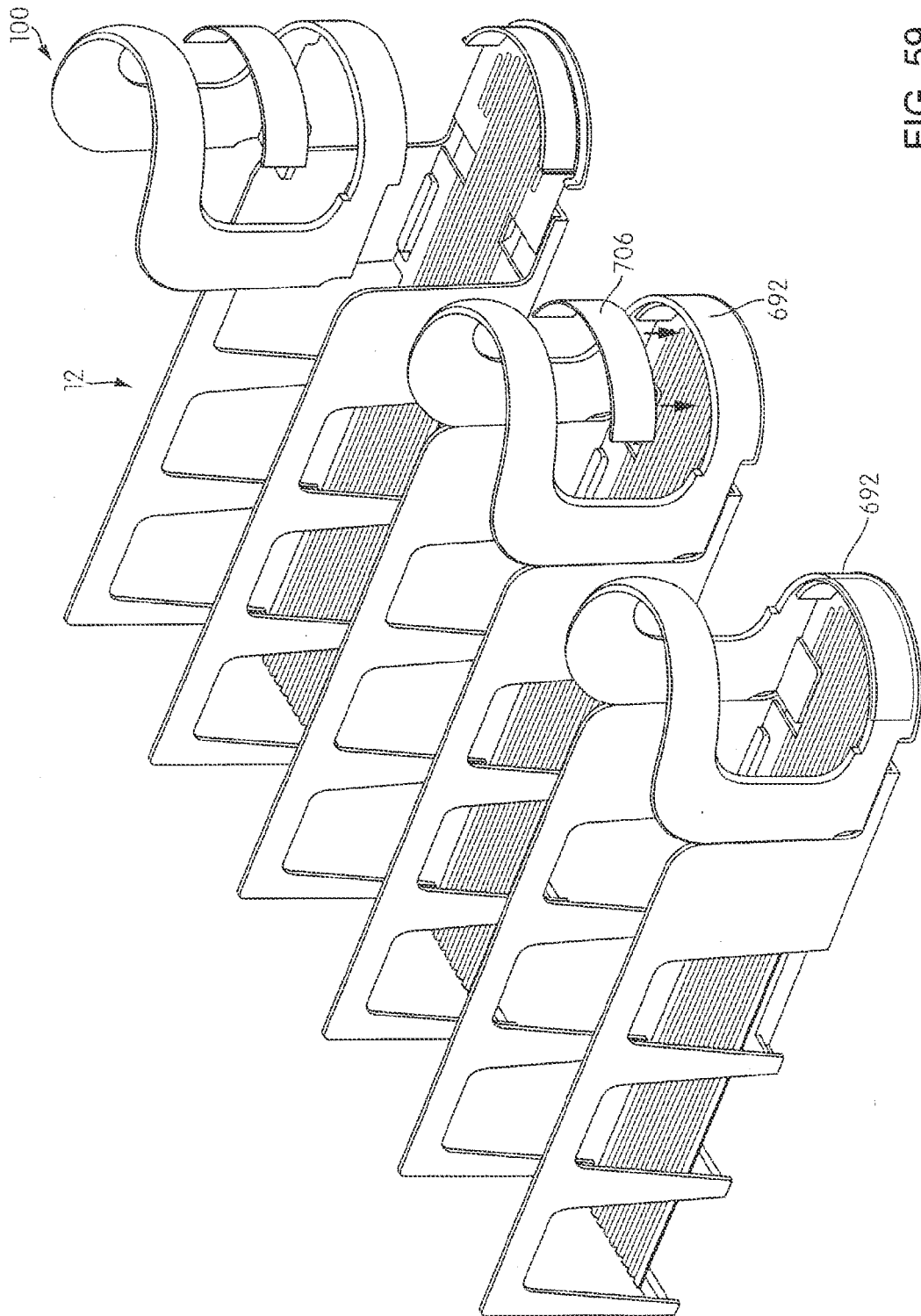


FIG. 59

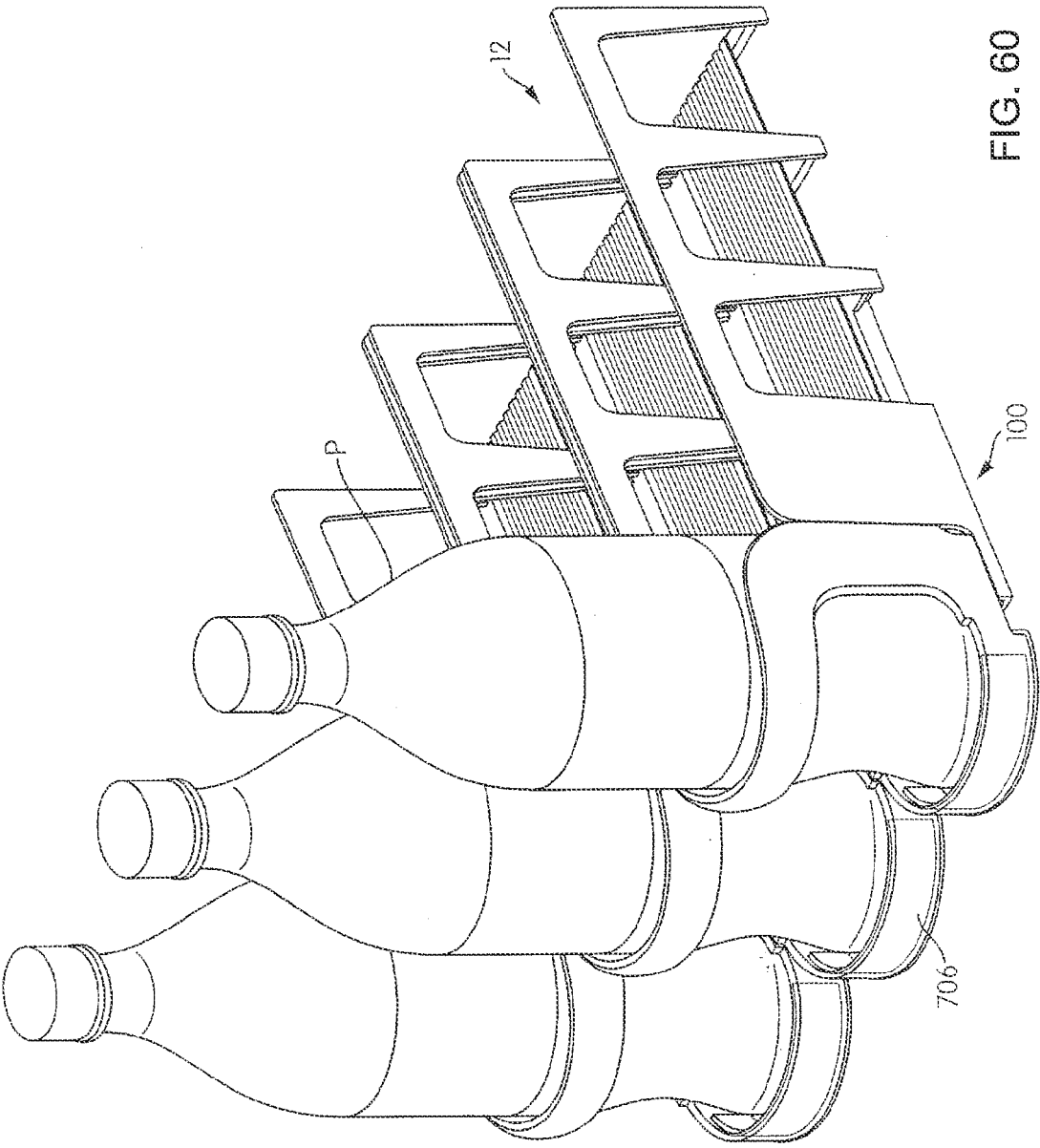


FIG. 60

REFERENCES CITED IN THE DESCRIPTION

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