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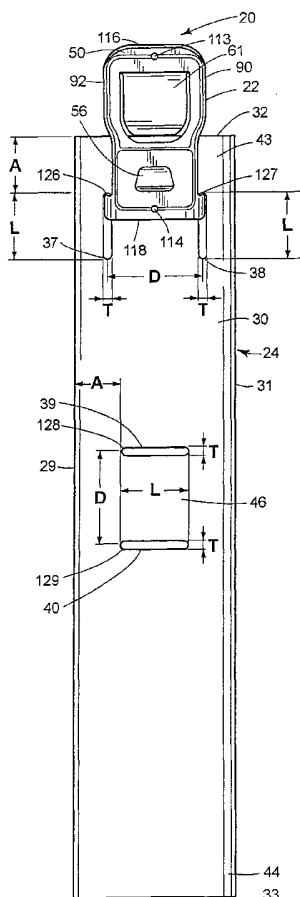
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[Continued on next page]

(54) Title: METHOD AND DEVICE FOR SUSPENDING BOXES



(57) Abstract: A box hanging device comprises a backing member having an arm and a flexible panel section projecting therefrom. The arm is adaptable for insertion into an object and the flexible panel section is capable of flexing inwardly to permit the arm to be inserted and removed from the box.

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METHOD AND DEVICE
FOR SUSPENDING BOXES

Cross-Reference To Related Application

5 [001] This application is based on and claims priority from provisional patent
Application Number 60/429,662 filed on November 27, 2002

Technical Field

[002] The present invention relates to hanging devices, and more particularly to a device
for hanging boxes or other containers.

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Background of the Invention

[003] The use of boxes for the storage of items is well known. Such boxes are used to
store a variety of articles, from food to general household items including reclosable
thermoplastic bags. Generally, such boxes can be characterized by shape, size, and
15 contents therein. Often, the boxes are stacked loosely in a cabinet or pantry on a shelf and
jostled during the process of removing contents, thereby requiring a user to hold the box
with one hand and pull the contents out with another.

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[004] Regardless of the type of box, a box that is loose on a shelf readily allows the
contents of the box to spill or, in the alternative, is difficult to reach unless the box is
20 carefully arranged and handled. In addition, many different types and sizes of boxes exist.
When such boxes are placed together in a confined space, such as a cupboard, cabinet,
drawer, shelf, refrigerator, or the like, a disorganized condition can develop, preventing a
user from easily locating a particular box. Further, as a user is attempting to locate a
particular box, the box may be jostled, thereby causing one or more containers to fall off a
25 supporting surface to the floor, resulting in breakage of the container and/or the articles
stored therein and/or spilling of contents. Also, the boxes are usually placed on top of one
another, leading to an inefficient use of space and difficulty in reaching the contents
therein. Still further, when boxes are stacked on top of each other in an unconfined
location, the boxes tend to slide out of the stacked configuration and into a disorganized
30 state.

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[005] Attempts have been made to address the foregoing problems through the use of hanging devices that suspend one or more boxes, thereby maintaining the boxes in an organized condition.

[006] Hy U.S. Patent No. 2,155,760 discloses a box holder for mounting a box on a wall or other surface. The box holder comprises a rectangular hanger-like body having marginal flanges that stiffen the body and space it from the surface or wall. Upper blades extending in a downward direction and lower blades extending in an upward direction are mounted to the body and pierce the box for suspension therefrom.

[007] Dube U. S. Patent No. 3,110, 467 discloses a hook for a facial tissue box. The hook is made of sheet metal and is capable of being attached to a surface. The hook includes a body having two spaced parallel slits disposed on sides thereof that define two prongs offset from the plane of the body. The prongs include pointed tips that pierce the box for suspension therefrom.

[008] Schnabel U. S. Patent No. 3,395,428 discloses an all purpose fastening clip for attaching objects to a fixed support. The clip includes a main body with a base extension for engaging a surface and an upcurved extension adapted to receive papers or other objects such as a box with a slit. The upcurved extension comprises a semi-loop that resiliently engages the main body.

[009] Jones U.S. Patent No. 4,176,817 discloses a releasable holder for boxes. The holder includes a base having end portions that project at right angles therefrom. A first end portion comprises pointed members for engaging a first side of a box. A second end portion includes an eccentric member rotatably mounted to the base. The eccentric member is rotated to cause a leveled edge thereof to move into engagement with a second side of the box, thereby securing the box between the end portions.

[0010] Chen U. S. Patent No. 5,494,250 discloses a cleaning tissue holder for hanging on a wall. The tissue holder includes an upper wall having a horizontal portion and a curved forward portion extending therefrom. A pack of cleaning tissues is engaged between the upper wall and a resiliently-biased push plate.

Summary of the Invention

[0011] In accordance with one aspect of the present invention, a hanging device includes a backing member having an arm adaptable for insertion into an object and a flexible panel

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section, wherein the flexible panel section is capable of flexing inwardly to permit the arm to be inserted and removed from the object.

[0012] In accordance with a further aspect of the present invention, a combination includes a hanging device having a backing member with a flexible panel section and an arm extending therefrom. The combination further includes a box, wherein a slot therein is capable of receiving the arm and wherein the flexible panel section is capable of flexing inwardly for insertion and removal of the arm from the box and outwardly to establish an interference fit.

[0013] In accordance with yet another aspect of the present invention, a box hanging device includes a backing member for attachment to a surface, first means extending from the backing member for supporting a box, and second means separate from the first means and extending from the backing member for forming an interference that interferes with removal of the box from the device.

[0014] In accordance with still another aspect of the present invention, a method for suspending an object includes the step of attaching a hanging device having a backing member, an arm, and an interference member to a surface. The method further includes the steps of providing an object having a slot, and inserting the arm into the slot of the object until a first portion of the object contacts a second portion of the arm and the interference member is disposed in interfering relationship with an outer surface of the object.

[0015] In accordance with a further aspect of the present invention, a box includes panels forming an enclosure and a plurality of slots each having a longitudinal centerline wherein the longitudinal centerlines are parallel to one another but not coincident. The box further includes an opening for removing product contained in the box.

[0016] In accordance with a still further aspect of the present invention, a combination comprises a box having a removable product opening section and a box mounting opening section wherein the box mounting opening section includes a pair of slots having centerlines that are not coincident. A hanging device has a first member for securing the hanging device to a surface and a second member extendable into the box mounting opening section for supporting the box.

[0017] In accordance with yet another aspect of the present invention, a combination includes a box having a removable product opening section and a box mounting opening

section wherein the box mounting opening section includes a single movable portion defining a single opening. The combination further includes a hanging device having a member for securing the hanging device to a surface and at least two arms extendable into the box mounting opening section for supporting the box.

5 [0018] Other aspects and advantages of the present invention will become apparent upon consideration of the following detailed description.

Brief Description of the Drawings

10 [0019] FIG. 1 is a back elevational view of a hanging device according to the present invention with a box suspended therefrom;

[0020] FIG. 2A is a front elevational view of the hanging device of FIG. 1 with a box suspended therefrom;

[0021] FIG. 2B is a side elevational view of FIG. 1 illustrating the side of the box with spaced slots;

15 [0022] FIG. 3A is an isometric view of the hanging device of FIG. 1 attached to a surface;

[0023] FIG. 3B is an isometric view of the hanging device similar to FIG. 3A illustrating the flexibility of the flexible panel section;

[0024] FIG. 4 is a fragmented isometric view of the hanging device of FIG. 1 illustrating the bottom section;

20 [0025] FIG. 5 is a front elevational view of the hanging device of FIG. 1;

[0026] FIG. 6 is a sectional view of the hanging device taken generally along the lines 6-6 of FIG. 5;

[0027] FIG. 7 is a side elevational view of a hanging device of FIG. 1 illustrating insertion of the arms into a box;

25 [0028] FIG. 8 is a side elevational view of the hanging device of FIG. 1 illustrating the arms inserted into the box;

[0029] FIG. 9 is an isometric view of a second embodiment of the present invention;

[0030] FIG. 10 is an isometric view of a third embodiment of the present invention;

[0031] FIG. 11 is a side elevational view of the hanging device of FIG. 10;

30 [0032] FIG. 12 is an isometric view of a fourth embodiment of the present invention;

[0033] FIG. 13 is a side elevational view of the hanging device of FIG. 12;

[0034] FIG. 14 is an isometric view of a fifth embodiment of the present invention;

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[0035] FIG. 15 is a side elevational view of a box usable with one or more of the embodiments of the hanging devices disclosed herein; and

[0036] FIG. 16 is a side elevational view of a further box usable with one or more of the embodiments of the hanging devices disclosed herein.

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Description of the Preferred Embodiment

[0037] Referring now to FIG. 1, a suspension or hanging device 20 includes a rectangular-shaped backing member 22. The hanging device 20 is to be used with any box 24 or other container capable of dispensing an item. The hanging device 20 is constructed of thermoplastic material but other materials may be employed.

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[0038] Referring also to FIGS. 2A and 2B the box 24 comprises six walls including side panels 28-31 and end panels 32 and 33. The panel 28 is opposite the panel 30, and the panels 29 and 31 are disposed between the panels 28 and 30. Any panel 28-33, and, more preferably, any of the panels 28-31 may include an opening 34 whereby any item, and preferably thermoplastic bags (not shown), are dispensed therefrom. Alternatively, plastic wrap, aluminum foil or another product may be dispensed from the box 24. Preferably, the opening 34 is disposed in the panel 28. The box 24 further includes at least one, and preferably a pair of spaced openings, such as parallel slots 37, 38 in one of the panels 28-33. If desired, one or more additional openings may be provided in one or more of the panels 28-33. For example, a pair of parallel slots 39 and 40 may be provided in the panel 30 and/or parallel slots 41 and 42 may be provided in the panel 31. Each of the slots 37, 38 and 41, 42 has a longitudinal centerline extending in a first direction and is disposed at an end 43 or 44 of the box 24. Each of the slots 39 and 40 has a longitudinal centerline extending in a second direction perpendicular to the first direction and is disposed at a center portion 46 of the box 24. Each pair of spaced slots 37-42 is capable of receiving the hanging device 20 and thereby suspending the box 24.

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[0039] As seen in FIG. 1, the spaced slots 37, 38 are preferably disposed adjacent the end panel 32 of the box 24 at a particular distance A therefrom. In addition, the slots 39, 40 are preferably disposed adjacent the panel 29 of the box 24 at the particular distance A therefrom. Also preferably, the slots 37 and 38 are transverse to, and more preferably, perpendicular to the end panels 32 and 33 of the box 24. Similarly, the slots 39 and 40 are preferably transverse to, and more preferably perpendicular to the panels 29 and 31. Still

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further, the longitudinal centerlines of the slots 37 and 38 are spaced from each other by a distance D and the slots 37 and 38 are spaced equal distances from the panels 29 and 31, respectively. Similarly, the longitudinal centerlines of the slots 39, 40 are preferably spaced from each other by the distance D and are disposed at equal distances from the end panels 32 and 33, respectively. In addition, the slots 37-42 are all preferably of the same length L and thickness T such that the slots 37-42 can receive portions of the hanging device 20, as noted in greater detail hereinafter.

[0040] Referring now to FIGS. 3A, 3B, and 4, the rectangular backing member 22 includes a base surface 50 having a raised portion 52 defining upper and lower sections 54, 56. An inner portion 58 of the upper section 54 includes an opening 60 within which is disposed a downwardly directed flexible panel section 61 having three sides 62, 64, 66. A hinge portion 68 joins the panel section 61 to the base surface 50 such that the panel section 61 is offset (i.e., raised outwardly) from the base surface 50. Referring specifically to FIG. 3B, a force may be applied to the flexible panel section 61 to cause the panel section 61 to deflect rearwardly about the hinge portion 68 into the opening 60 to a deflected position. The panel section 61 flexes outwardly about the hinge portion 68 away from the opening 60 to a rest position (FIG. 3A) when the force is removed.

[0041] An inner portion 57 of the lower section 56 further includes an integral projection 80 that tapers outwardly from a top end 82 to a bottom end 84 as seen in FIGS. 3A and 3B.

[0042] Referring also to FIGS. 4 and 5, the device 20 further includes two arms 86, 88 integral with and projecting perpendicularly from each side 90, 92 (FIG. 5) of the base surface 50 to form first and second channels 94, 96, respectively (FIGS. 4 and 5). As noted in greater detail hereinafter, the first and second channels 94, 96 are capable of receiving a portion of the box 24. The arm 86 includes a transverse portion 98 perpendicular to and integral with the base surface 50. The transverse portion 98 includes a contact surface 100 (FIG. 4) defining a closed end 101 of the channel 94. A curved portion 104 extends upwardly parallel to the backing member 22 from the transverse portion 98 and is integral therewith. The curved portion 104 includes a tapered lead-in portion 108 flared outwardly away from the backing member 22 at an open end 111 of the channel 94.

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[0043] In similar fashion, the arm 88 includes a transverse portion 99 perpendicular to and integral with the base surface 50. The transverse portion 99 includes a contact surface 102 at a closed end 103 of the channel 96, a curved portion 106 extending from the transverse portion 99 and a tapered lead-in portion 110 flared outwardly away from the backing member 22 at open end 112 of the channel 96 (the curved portion 106, the tapered lead-in portion, and the open end 112 are also visible in FIG. 6).

[0044] Referring to FIGS. 3A – 6, mounting holes 113, 114 extend through the backing member 22 at a top 116 and a bottom 118, respectively, of the backing member 22 and are adapted to accept fasteners for fastening the device to a surface 124 (FIG. 3A), such as a wall, floor or underside of a shelf, cabinet, pantry, closet, etc. Further suitable means for fastening the hanging device 20 include hook and loop (i.e., Velcro) fasteners, double sided tape, an adhesive, or the like disposed between the backing member 22 and the mounting surface 124.

[0045] In operation and as seen in FIGS. 7 and 8, a user places the box 24 such that the tapered lead-in portions 108, 110 of the arms 86, 88 are inserted into the spaced slots 37, 38 or 39, 40 or 41, 42 of the box 24 and guides the box 24 in a downward direction over the arms 86, 88 and into the channels 94, 96. End portions 126, 127 of walls defining the spaced slots 37, 38 (or end portions 128, 129 of walls defining the spaced slots 39, 40 or end portions 130, 131 of walls defining the spaced slots 41, 42) slide into the channels 94, 96 until the end portions 126, 127 (or 128, 129 or 130, 131) contact the surfaces 100, 102 of the channels 94, 96 whereupon the integral projection 80 abuts and supports the panel 30 (or panel 28, 29, or 31-33) of the box 24. This contact causes the flexible panel section 61 to move past the edge of the panel 32 (or the edge of the panel 29 if the slots 39 and 40 are used) of the box 24 and allows the panel section 61 to move outwardly and establish an interference fit between the suspended box 24 and the flexible panel section 61. The interference fit locks the box 24 in a particular position on the hanging device 20. To overcome the interference fit, a force is applied against the flexible panel section 61 toward the base surface 50, thereby deflecting the flexible panel section 61 rearwardly into the opening 60 and out of the interfering relationship with the box 24. To remove the box 24 from the hanging device 20, the box 24 is pulled upwardly past the flexible panel section 61 and the end portions 126, 127 (or 128, 129 or 130, 131) are removed from the channels 94, 96, whereupon the box is disengaged from the hanging device 20.

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[0046] In the preferred embodiment, the dimension D is in a range between about 1.1 inch (27.94 mm) and about 2.1 inch (53.34 mm), and more particularly, is between about 1.4 inch (35.56 mm) and about 1.9 inch (48.26 mm). Most preferably, the dimension D is about equal to 1.656 inch (42.0624 mm). Also, the dimension L is preferably in a range between about 0.50 inch (12.7 mm) and about 1.50 inch (38.1 mm), and more preferably in a range between about 0.75 inch (19.05 mm) and about 1.25 inch (31.75 mm), and most preferably is about equal to 1.00 inch (25.4 mm). Still further, the dimension A is preferably in a range between about 0.75 inch (19.05 mm) and about 1.25 inch (31.75 mm), and more preferably in a range between about 0.90 inch (22.86 mm) and about 1.10 inch (27.94 mm), and most preferably is about equal to 1.031 inch (26.1874 mm). In addition, the dimension T is preferably in a range between about 0.100 inch (2.54 mm) and about 0.150 inch (3.81 mm), and more preferably in a range between about 0.112 inch (2.8448 mm) and about 0.137 inch (3.4798 mm), and most preferably equal to about 0.125 inch (3.175 mm).

[0047] FIG. 9 shows a hanging device 150 according to another embodiment wherein elements common to the various embodiments are given like reference numbers. In this embodiment, the two arms 86 and 88 are replaced by a single arm 152 that is preferably (although not necessarily) centered between the sides 90, 92 of the hanging device 150. The hanging device 150 includes all other aspects of the embodiment shown in FIG. 3A – 6 that enable the hanging device to attach to a surface and suspend a cardboard box. A user positions a box, such as the box 24, such that the arm 152 extends into one of the slots 37-42 in exactly the same way as described above with reference to the device of FIG. 1. However, the box is suspended from the single arm 152. Of course, the box 24 need only include a single slot or multiple individual slots as opposed to pairs of slots, if desired, in this embodiment.

[0048] Referring now to FIGS. 10 and 11, a hanging device 160 according to a further embodiment is shown. In this embodiment the integral projection 80 of the device of FIG. 1 is not present; however, two projections 162, 164 taper or bulge outwardly on each side 90, 92 of the raised portion 52 of the lower section 56 and a small tab 166 is integrally formed on the back side 168 of the flexible panel section 61. As a user inserts a box into the arms 86, 88 of the hanging device 160 as described above with reference to FIG. 1 to suspend a box, the projections 162, 164 abut and support the panel 30 (or another of the

panels 28, 29 and 31-33) of the box 24. This contact causes the flexible panel section 61 to move past the edge of the panel 29 and allow the panel 29 to establish the above-described interference fit between the suspended box 24 and the flexible panel section 61. To overcome the interference fit, a force is applied against the flexible panel section 61 to move same rearwardly into the opening 60. In the case where the hanging device 160 is secured to the mounting surface 124 by double sided adhesive tape 170 (the thickness of which is exaggerated in FIG. 11 for clarity), such movement may cause the tab 166 to contact a first side 171 of the double sided adhesive tape 170; however, the size of the tab 166 is sufficiently small to prevent substantial adhesion of the flexible panel 61 to the adhesive tape 170.

[0049] FIGS. 12 and 13 illustrate yet another holding device 190 according to another embodiment. The holding device has a somewhat different hinge structure 192 as compared to the previous embodiments that results in the flexible panel section 61 being offset as well as inclined with respect to the base surface 50 when in the undeflected position (as seen in FIGS. 12 and 13). In addition, a raised flange 194 extends away from the base surface 50 in the form of roughly a figure-eight shape and includes a projection in the form of a lower portion 196 that is raised still farther away from the base surface 50, as seen in FIG. 13. This results in a condition wherein a surface 198 of the lower portion 196 is spaced a greater distance away from the base surface 50 than inner surfaces 200, 202 of the arms 86, 88, respectively. As a consequence, an interference is established between the surface 198 on the one hand and the inner surfaces 200, 202. When the box 24 is positioned on the arms 86, 88 such that the arms 86, 88 are moved into the respective slots 37, 38 or 39, 40 or 41, 42, the flexible paperboard material of the box between the slots is deflected as the end portions 126, 127 (or 128, 129 or 130, 131) are moved into engagement with the surfaces 100, 102 of the channels 94, 96. This deflection and the interference of the flexible panel section 61 with one of the box panels 28-33 securely lock the box 24 on the holding device 190 in a stable orientation.

[0050] FIG. 14 illustrates a holding device 210 according to yet another embodiment which is identical to the embodiment of FIGS. 12 and 13, except that the flexible panel section 61 is replaced by a static (i.e., non-movable) central panel section 212 that does not interfere with any portion of the box 24 when the box 24 is mounted on the holding device 210. In this embodiment, the box 24 is retained on the holding device 210 solely

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by the interference between the surface 198 and the inner surfaces 200, 202 of the arms 86, 88.

[0051] As noted above, greater or fewer than two slots may be provided in each group of slots. For example, FIG. 15 illustrates three slot groups 220, 222, and 224 disposed in the

5 panel 29 of the box 24. Each slot group 220, 222, and 224 includes slots 220a-220c, 222a-222c, and 224a-224c, respectively. Preferably, the slots 220a-220c, 222a-222c, and 224a-224c are all identical and have the dimensions noted above with respect to FIGS. 1-2B. Taking the slot 220a as an example, the slot 220a is defined by a score line 226 and a perforated section 228. Preferably, the score line 226 extends at least a portion, and more

10 preferably, the full extent of a linear side portion 229 of the slot 220a whereas a remainder of the slot 220a, including curved end portions 230, 232, comprise the perforated section 228. Thus, when one of the arms 86, 88 is inserted into the slot 220a, the perforated section 228 separates from the remainder of the panel 29, and the resulting separated portion folds about the score line 226 and remains attached to the panel 29. Thus, the

15 separated portion(s) of the panels(s) 28-33 that are punched through to form the opening(s) remain attached to the box 24 so that undesirable litter is not formed. The box 24 may be disposed on any of the holding devices illustrated and described above, in which case, the arm(s) of the holding device extend into a like number of slot(s) in the box 24 to suspend the box 24 thereon. Alternatively, a holding device identical to any of the preceding

20 embodiments, but having three arms could be used to suspend the box 24 illustrated in FIG. 15. In such a case, the three arms extend into the three openings 220a-220c or 222a-222c or 224a-224c of one of the groups 220, 222, or 224 as desired, similar to the preceding embodiments.

[0052] Of course, each slot group may include four, five, or more slots, if desired.

25 [0053] FIG. 16 illustrates a box 24 having single openable portions 230 and 232 in one of the panels 28-32, for example, the panel 31. The openable portions 230 and 232 may be (although they need not be) substantially identical in size and shape. In the illustrated embodiment, the openable portion 230 is disposed adjacent the end panel 32 and is spaced the distance A therefrom. Also, the openable portion 232 is disposed adjacent the panel 30 and is spaced the distance A therefrom. Each openable portion 230, 232 further has a first

30 dimension equal to the dimension L discussed above and a second dimension W.

Preferably, the dimension W is in a range between about 1.25 inch (31.75 mm) and about

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2.30 inch (58.42 mm), and more preferably is in a range between about 1.50 inch (38.1 mm) and about 2.05 inch (52.07 mm), and most preferably is equal to about 1.781 inch (45.2374 mm). In addition, the openable portions 230 and 232 are preferably defined by score lines 234, 236 and perforated sections 238, 240, like the slots 220, 222, and 224 described above. Any of the holding devices described above may be used to support the box illustrated in FIG. 16. Specifically, a user first determines which of the openable portions 230 or 232 is to be opened to permit support of the box 24. The user then pushes in the desired portion 230 or 232, thereby causing separation of the perforated section 238 or 240 from the balance of the panel 31 and bending of the openable portion about the score line 234 or 236. The arms of any one of the holding devices described above can then be inserted into the resulting opening such that the arms are disposed at outer side sections of the opening and extend inside the box and engage an inner surface of the panel 31. The flexible panel section 61 (if present) eventually moves into interfering engagement with either the end panel 32 or the panel 30 to lock the box 24 on the holding device. The box 24 can thereafter be released from the holding device as noted above.

Industrial Applicability

[0054] As should be evident, one may use single or ganged multiple hanging devices that are secured to a vertical support surface, a horizontal support surface or a non-horizontal and non-vertical support surface in any configuration and/or orientation desired by the user so that the boxes are maintained in a desired arrangement, including side by side or vertically stacked.

[0055] The hanging device of the present invention can be made from any suitable rigid material such as plastic, glass, metal, wood and similar substances. The only important features of the materials of construction are that they be relatively rigid, inexpensive, and can be readily formed into a desired shape. Suitable plastic materials include polypropylene, polyethylene, styrene, nylon, and a wide variety of other similar homopolymers and copolymer materials. Any suitable molding technique can be used to form these devices, including injection molding and thermoforming.

[0056] The hanging device allows a user to address a variety of home storage problems. First, the hanging device enables a user to store and organize boxes to fully utilize available storage space. For example, in a closet, pantry, cabinet, or the like the present

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invention allows a user to hang boxes from the underside of a surface, thus freeing up the shelf surface space for the storage of other items.

[0057] As should be evident, the hanging device of the present invention may be of any suitable shape, such as polygonal (triangular, pentagonal, hexagonal, etc...), circular, regular, or irregular shape. The hanging device may be packaged in the box in combination with the product stored therein, or the hanging device may be separately provided, as desired. Fastening means, such as a section of double-sided adhesive tape, screws, hook and loop fasteners, etc... may also be provided in the box or may be provided separately, as desired.

[0058] Numerous modifications to the present invention will be apparent to those skilled in the art in view of the foregoing description. Accordingly, this description is to be construed as illustrative only and is presented for the purpose of enabling those skilled in the art to make and use the invention and to teach the best mode of carrying out the same. The exclusive rights to all modifications which come within the scope of the appended claims are reserved.

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We Claim:

1. A hanging device, comprising:
a backing member having an arm adaptable for insertion into an object and a
5 flexible panel section;
wherein the flexible panel section is capable of flexing inwardly to permit the arm
to be inserted and removed from the object.
- 10 2. The hanging device of claim 1, wherein the flexible panel section includes
a tab.
3. The hanging device of claim 1, wherein the backing member includes two
arms having a first portion transverse to the backing member.
- 15 4. The hanging device of claim 3, wherein each arm includes a curved portion
extending from the first portion and spaced from the backing member.
- 20 5. The hanging device of claim 4, wherein each curved portion includes a
tapered lead-in portion.
6. The hanging device of claim 3, wherein the arms and backing member form
two channels.
- 25 7. The hanging device of claim 6, wherein each of the channels comprises a
closed end and an open end and wherein the open ends receive a portion of a box.
8. The hanging device of claim 1, wherein the backing member comprises a
top portion and a bottom portion.

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9. The hanging device of claim 8, wherein the top portion includes walls defining an opening and wherein the flexible panel section is disposed in the opening.

5 10. The hanging device of claim 7, wherein the bottom portion includes a projection.

11. The hanging device of claim 1, wherein the backing member includes at least one mounting hole for accepting a fastener.

10 12. The hanging device of claim 1, wherein the backing member includes double sided adhesive tape on a back surface thereof.

15 13. The hanging device of claim 1, wherein the backing member has a polygonal shape.

14. The hanging device of claim 1, wherein the backing member has a rectangular shape.

20 15. The hanging device of claim 1, wherein the device is made out of plastic.

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16. A combination, comprising:

a hanging device including a backing member having a flexible panel section and an arm extending therefrom; and

a box, wherein a slot therein is capable of receiving the arm and wherein the flexible panel section is capable of flexing inwardly for insertion and removal of the arm from the box and outwardly to establish an interference fit.

17. The combination of claim 16, wherein the hanging device includes two arms.

18. The combination of claim 17, wherein each arm includes a tapered lead-in portion capable of insertion into the slots.

19. The combination of claim 18, wherein the arms further include main portions transverse to the backing member and the tapered lead-in portions.

20. The combination of claim 16, wherein the backing member includes double sided adhesive tape on a back surface thereof.

21. The combination of claim 16, wherein the box includes disposable bags.

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22. A box hanging device, comprising:
a backing member for attachment to a surface;
first means extending from the backing member for supporting a box; and
second means separate from the first means and extending from the backing
5 member for forming an interference that interferes with removal of the box from the
device.

23. The box hanging device of claim 22, wherein the second means comprises
a surface of a lower portion of the hanging device.

24. The box hanging device of claim 22, wherein the second means comprises
a flexible panel section disposed at an upper portion of the hanging device.

25. The box hanging device of claim 22, further comprising a mounting hole.

26. The box hanging device of claim 22, further comprising double sided
adhesive tape on a back surface thereof.

27. The box hanging device of claim 22, wherein the first means comprises
main portions perpendicular to the backing member and tapered lead-in portions for
20 penetrating slots in the box.

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28. A method for suspending an object, the method comprising the steps of:
attaching a hanging device having a backing member, an arm, and an interference
member to a surface;

providing an object having a slot; and

5 inserting the arm into the slot of the object until a first portion of the object
contacts a second portion of the arm and the interference member is disposed in interfering
relationship with an outer surface of the object.

29. The method of claim 28, wherein the backing member includes two arms
10 each having a first portion transverse to the backing member.

30. The method of claim 29, wherein each arm includes a curved portion
extending from the first portion and spaced from the backing member and wherein each
curved portion includes a tapered lead-in portion.

31. The method of claim 30, wherein the backing member includes at least one
15 mounting hole for accepting a fastener.

32. The method of claim 28, wherein the interference member comprises a
20 surface of a lower portion of the hanging device.

33. The method of claim 28, wherein the interference member comprises a
substantially rectangular shape.

25 34. The method of claim 28, wherein the device is made out of plastic.

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35. A box, comprising:
panels forming an enclosure;
a plurality of slots each having a longitudinal centerline wherein the longitudinal
centerlines are parallel to one another, but not coincident; and
5 an opening separate from the slots for removing product contained in the box.

36. The box of claim 35, wherein the box contains thermoplastic bags.

37. The box of claim 35, wherein the box contains thermoplastic wrap.

38. The box of claim 35, wherein the box contains aluminum foil.

39. The box of claim 35, wherein the box is made of paperboard.

40. The box of claim 35, wherein the slots are disposed at one end of the box.

41. The box of claim 35, wherein the slots are disposed in a center portion of
the box.

42. The box of claim 35, wherein the slots are disposed in a first panel of the
box.

43. The box of claim 42, wherein the opening is in a second panel of the box
different than the first panel.

44. The box of claim 43, wherein the first panel is opposite the second panel.

45. The box of claim 43, wherein the first panel is adjacent the second panel.

46. The box of claim 42, wherein a further group of slots is disposed in the first
panel of the box transverse to the plurality of slots.

47. The box of claim 46, wherein the plurality of slots is substantially centered between opposite ends of the box and wherein the slots of the further group of slots are parallel to one another and disposed adjacent one of the ends of the box.

5 48. The box of claim 47, wherein the further group of slots comprise a pair of slots that is substantially centered between opposite faces of the box.

49. The box of claim 46, wherein each slot is defined by a movable portion.

10 50. The box of claim 35, wherein the longitudinal centerlines are spaced between about 1.1 inch (27.94 mm) and about 2.1 inches (53.34 mm) apart.

51. The box of claim 35, wherein the longitudinal centerlines are spaced between about 1.4 inch (35.56 mm) and about 1.9 inch (48.26 mm) apart.

15 52. The box of claim 35, wherein the longitudinal centerlines are spaced about 1.656 inch (42.0624 mm) apart.

20 53. The box of claim 35, wherein each slot is between about 0.50 inch (12.7 mm) and about 1.50 inch (38.1 mm) in length.

54. The box of claim 35, wherein each slot is between about 0.75 inch (19.05 mm) and about 1.25 inch (31.75 mm) in length.

25 55. The box of claim 35, wherein each slot is about 1.00 inch (25.4 mm) in length.

56. The box of claim 35, wherein each slot is spaced from an adjacent side panel between about 0.75 inch (19.05 mm) and about 1.25 inch (31.75 mm).

30 57. The box of claim 35, wherein each slot is spaced from an adjacent side panel between about 0.90 inch (22.86 mm) and about 1.10 inch (27.94 mm).

58. The box of claim 35, wherein each slot is spaced from an adjacent side panel about 1.031 inch (26.1874 mm).

5 59. The box of claim 35, wherein each slot is between about 0.100 inch (2.54 mm) and about 0.150 inch (3.81 mm) in width.

60. The box of claim 35, wherein each slot is between about 0.112 inch (2.8448 mm) and about 0.137 inch (3.4798 mm) in width.

10

61. The box of claim 35, wherein each slot is about 0.125 inch (3.175 mm) in width.

15 62. The box of claim 35, wherein the longitudinal centerlines are spaced about 1.656 inch (42.0624 mm) apart, each slot is about 1.00 inch (25.4 mm) in length, each slot is spaced from an adjacent side panel about 1.031 inch (26.1874 mm), and each slot is about 0.125 inch (3.175 mm) in width.

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63. A combination, comprising:

a box having a removable product opening section and a box mounting opening section wherein the box mounting opening section includes a pair of slots having centerlines that are not coincident; and

5 a hanging device having a first member for securing the hanging device to a surface and a second member extendable into the box mounting opening section for supporting the box.

10 64. The combination of claim 63, further including a plurality of plastic storage pouches in the box with the hanging device.

65. The combination of claim 63, wherein the hanging device includes a section of double-sided adhesive tape secured to the first member.

15 66. The combination of claim 63, wherein the hanging device includes at least one mounting hole extending through the first member.

20 67. The combination of claim 63, wherein the removable product opening section is disposed in a first panel of the box and the box mounting section is disposed in a second panel of the box different than the first panel.

68. The combination of claim 67, wherein the first panel is adjacent the second panel.

25 69. The combination of claim 67, wherein the first panel is opposite the second panel.

30 70. The combination of claim 63, wherein the box mounting opening section includes movable portions defining the pair of slots.

71. The combination of claim 70, wherein the slots have longitudinal centerlines that are parallel to one another.

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72. The combination of claim 71, wherein the longitudinal centerlines are spaced between about 1.1 inch (27.94 mm) and about 2.1 inch (53.34 mm) apart.

5 73. The combination of claim 71, wherein the longitudinal centerlines are spaced between about 1.4 inch (35.56 mm) and about 1.9 inch (48.26 mm) apart.

74. The combination of claim 71, wherein the longitudinal centerlines are spaced about 1.656 inch (42.0624 mm) apart.

10

75. The combination of claim 71, wherein each slot is between about 0.50 inch (12.7 mm) and about 1.50 inch (38.1 mm) in length.

15 76. The combination of claim 71, wherein each slot is between about 0.75 inch (19.05 mm) and about 1.25 inch (31.75 mm) in length.

77. The combination of claim 71, wherein each slot is about 1.00 inch (25.4 mm) in length.

20 78. The combination of claim 71, wherein each slot is spaced from an adjacent side panel between about 0.75 inch (19.05 mm) and about 1.25 inch (31.75 mm).

79. The combination of claim 71, wherein each slot is spaced from an adjacent side panel between about 0.90 inch (22.86 mm) and about 1.10 inch (27.94 mm).

25

80. The combination of claim 71, wherein each slot is spaced from an adjacent side panel about 1.031 inch (26.1874 mm).

30 81. The combination of claim 71, wherein each slot is between about 0.100 inch (2.54 mm) and about 0.150 inch (3.81 mm) in width.

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82. The combination of claim 71, wherein each slot is between about 0.112 inch (2.8448 mm) and about 0.137 inch (3.4798 mm) in width.

5 83. The combination of claim 71, wherein each slot is about 0.125 inch (3.175 mm) in width.

84. The combination of claim 71, wherein the longitudinal centerlines are spaced about 1.656 inch (42.0624 mm) apart, each slot is about 1.00 inch (25.4 mm) in length, each slot is spaced from an adjacent side panel about 1.031 inch (26.1874 mm),
10 and each slot is about 0.125 inch (3.175 mm) in width.

85. The combination of claim 71, wherein the second member comprises a pair of arms insertable into the pair of slots.

15 86. The combination of claim 71, wherein the second member comprises a plurality of arms insertable into the box mounting opening section.

87. The combination of claim 63, wherein the box mounting opening section includes movable portions defining a plurality of pairs of slots.
20

88. The combination of claim 87, wherein a first pair of slots is transverse to a second pair of slots.

89. The combination of claim 88, wherein the first pair of slots is substantially centered between opposite ends of the box and wherein the second pair of slots is disposed adjacent one of the ends of the box and is substantially centered between opposite faces of the box.
25

90. The combination of claim 88, wherein the second member comprises a pair of arms insertable into one of the pairs of slots.
30

91. The combination of claim 63, wherein the hanging device further includes a flexible panel section movable into interfering relation with a portion of the box.

92. The combination of claim 63, wherein the hanging device includes a pair of arms disposed on either side of a base surface.

5 93. The combination of claim 92, wherein the hanging device includes a projection that has an engaging surface spaced from the base surface by a particular distance.

10 94. The combination of claim 93, wherein each of the arms includes a curved engaging edge that is spaced from the base surface by a certain distance less than the particular distance.

15 95. The combination of claim 94, wherein the projection tapers outwardly away from the base surface.

 96. The combination of claim 94, wherein the projection comprises an upstanding wall surrounding a central section.

20 97. The combination of claim 63, wherein the box mounting opening section includes three movable portions defining three openings.

 98. The combination of claim 63, wherein the hanging device is disposed in the box.

25 99. The combination of claim 98, wherein fastening means is also disposed in the box.

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100. A combination, comprising:

a box having a removable product opening section and a box mounting opening section wherein the box mounting opening section includes a single movable portion defining a single opening; and

5 a hanging device having a member for securing the hanging device to a surface and at least two arms extendable into the box mounting opening section for supporting the box.

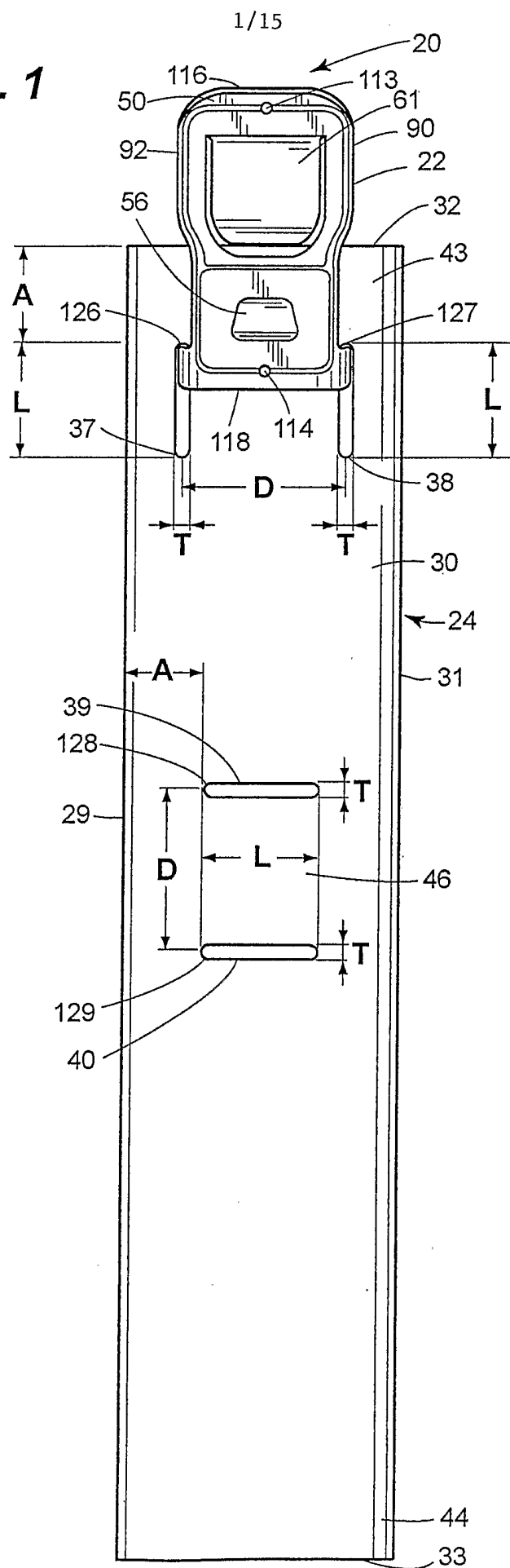
101. The combination of claim 100, wherein the mounting device includes three arms insertable into the single opening.

10

102. The combination of claim 100, wherein each of the arms includes a curved engaging edge.

103. The combination of claim 100, wherein the hanging device further includes means for forming an interference with the box

15

FIG. 1

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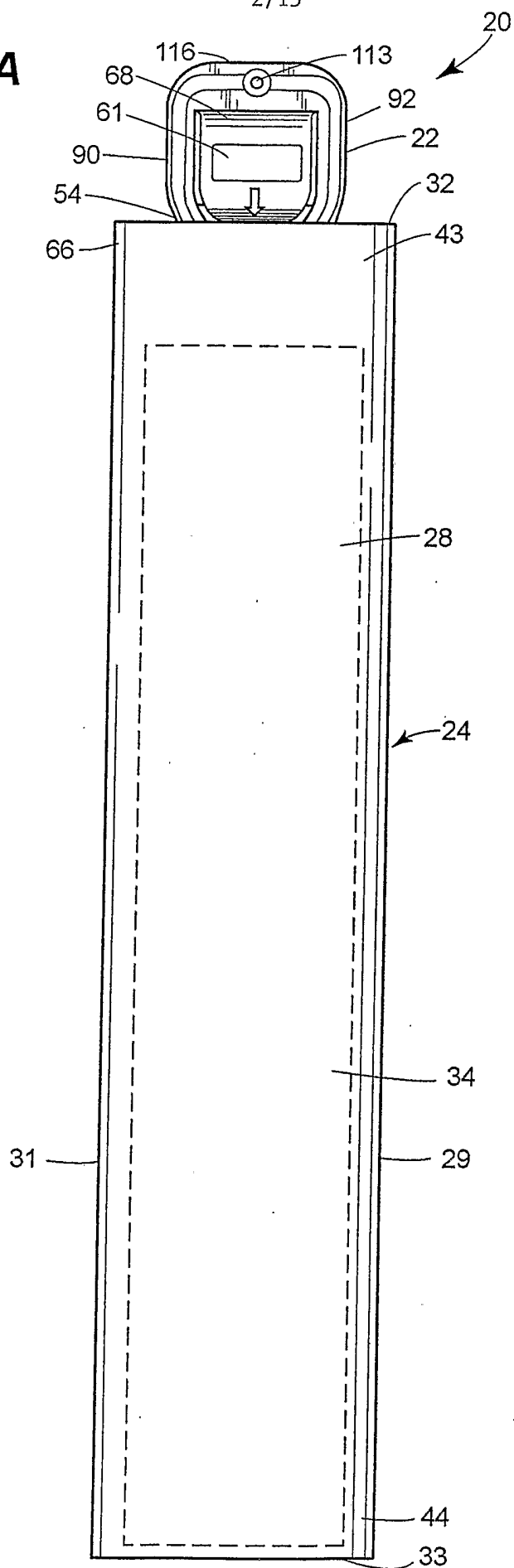
FIG. 2A

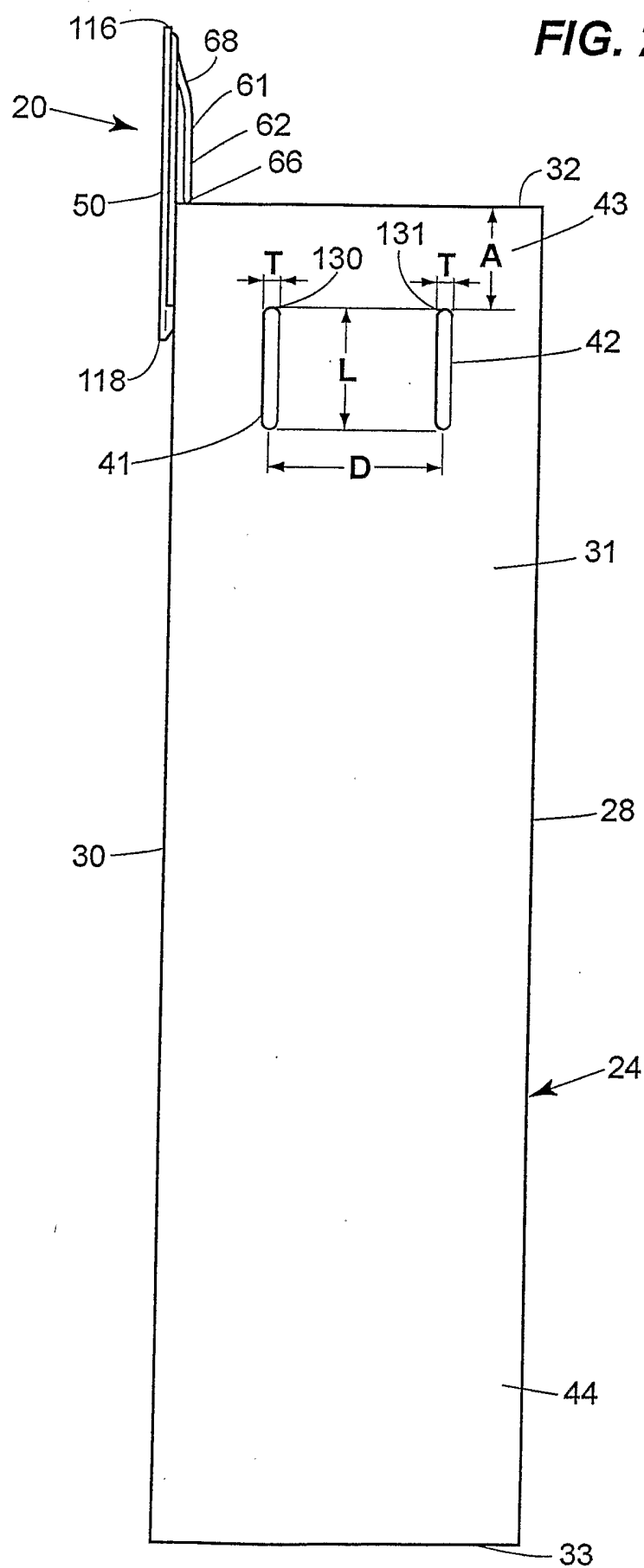
FIG. 2B

FIG. 3A

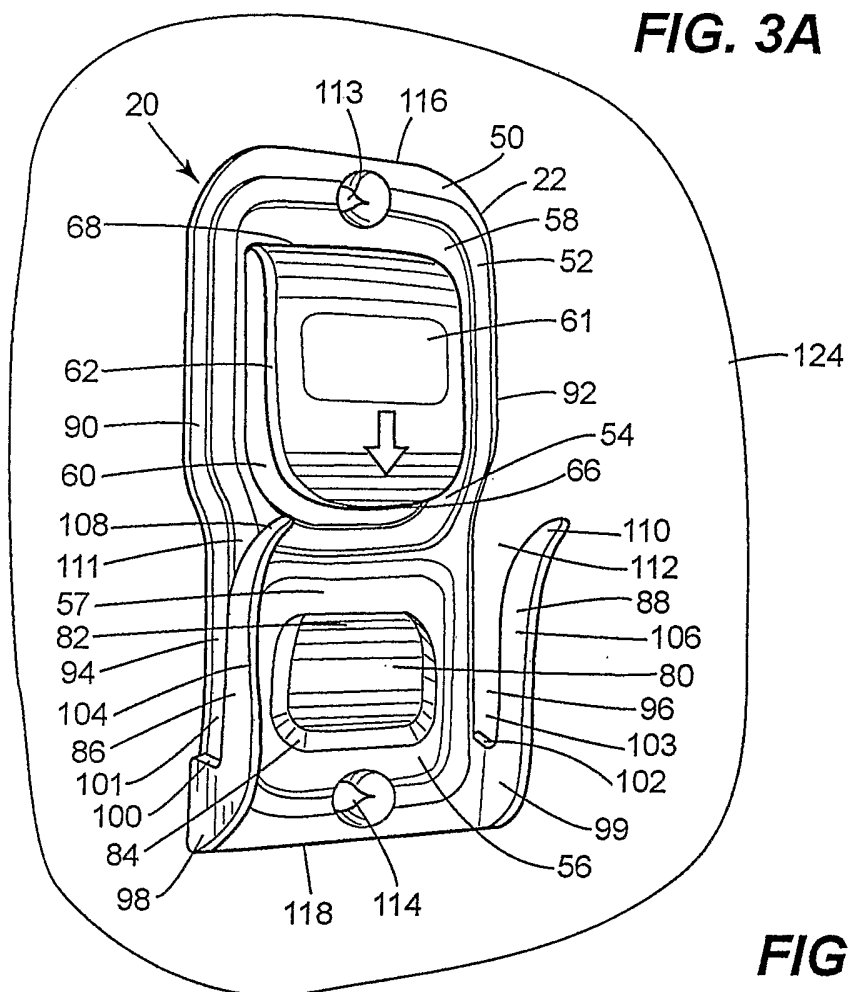


FIG. 3B

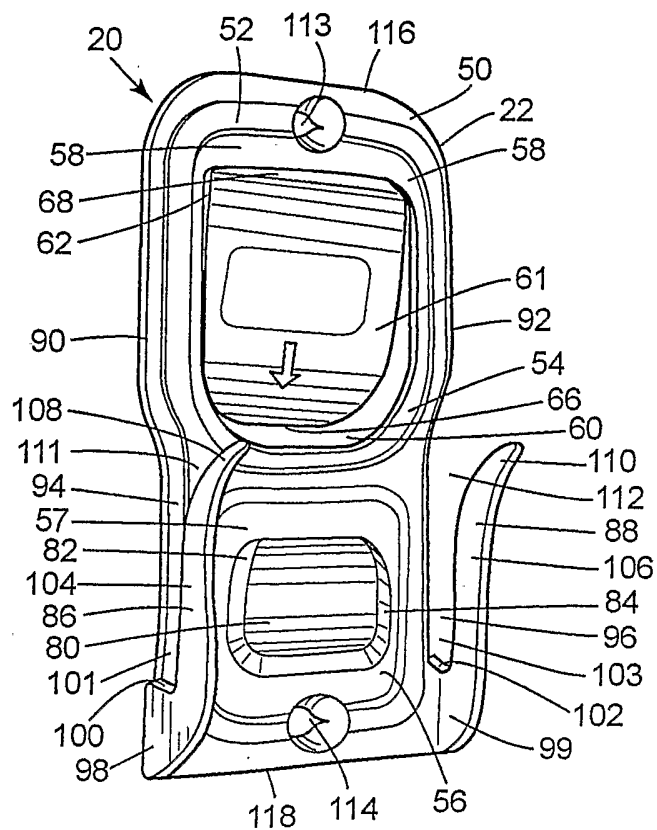


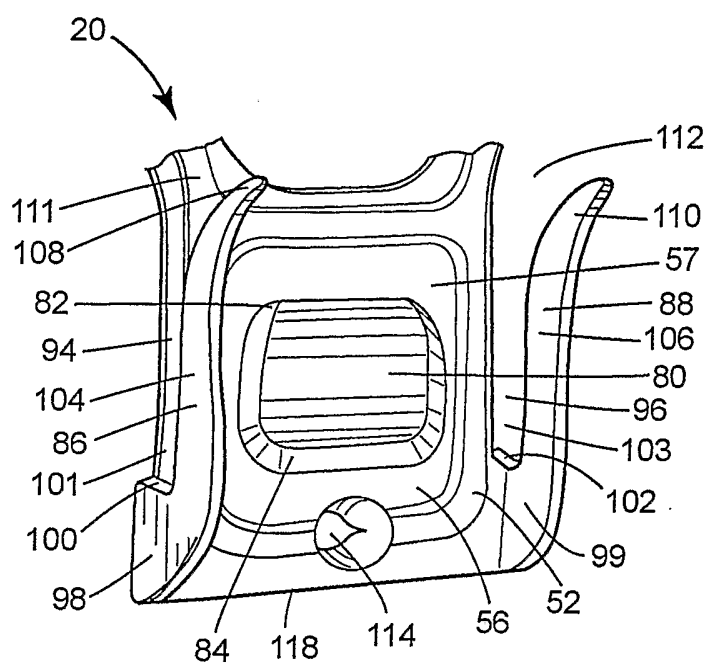
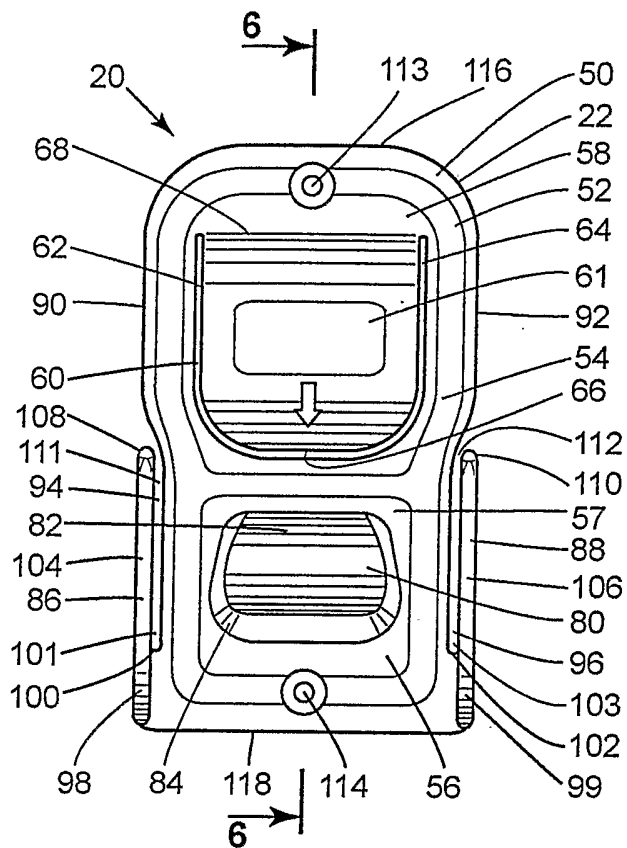
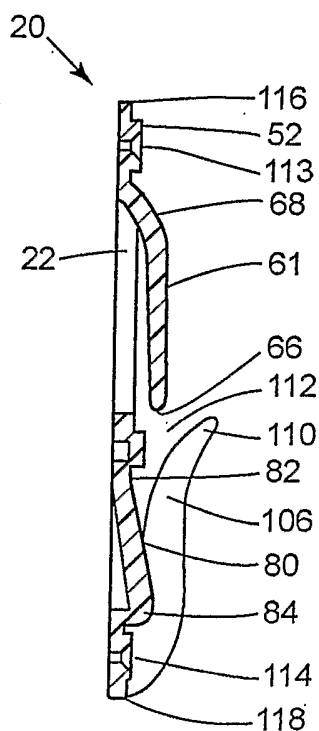
FIG. 4

FIG. 5**FIG. 6**

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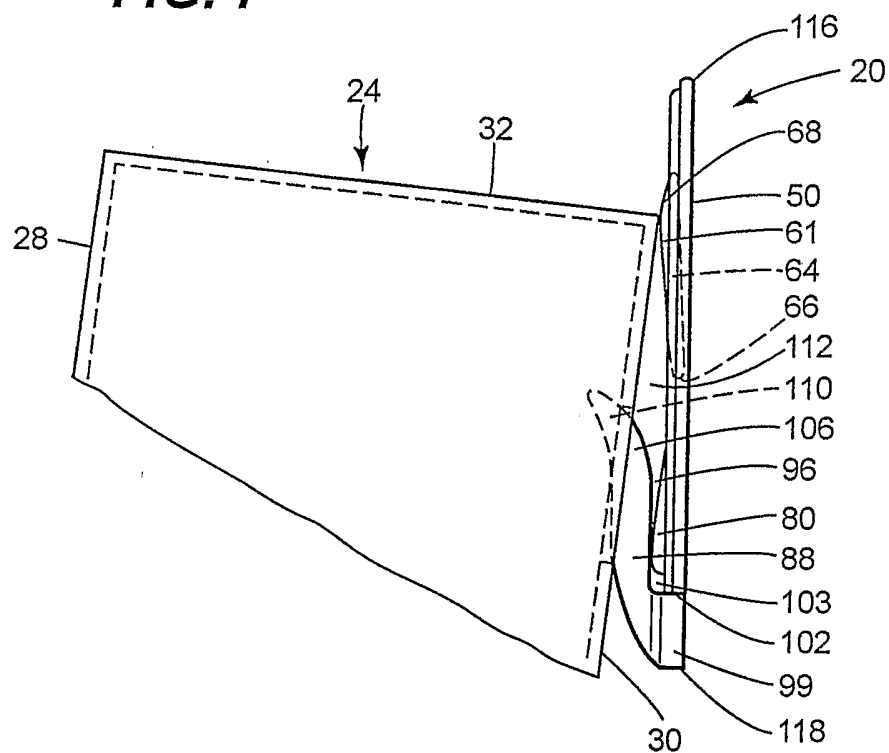
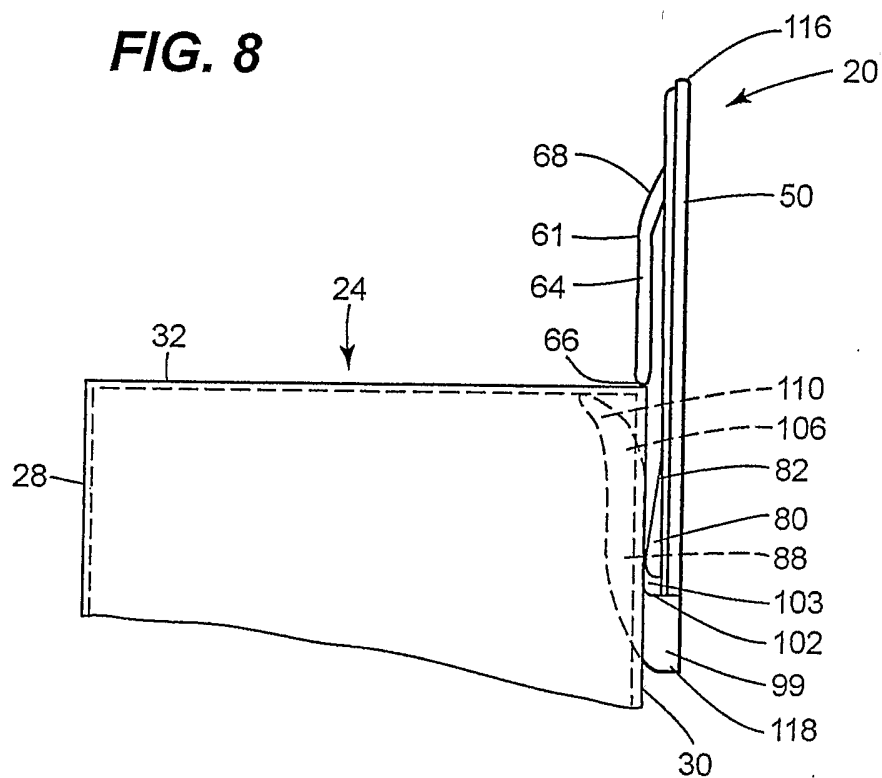
FIG. 7**FIG. 8**

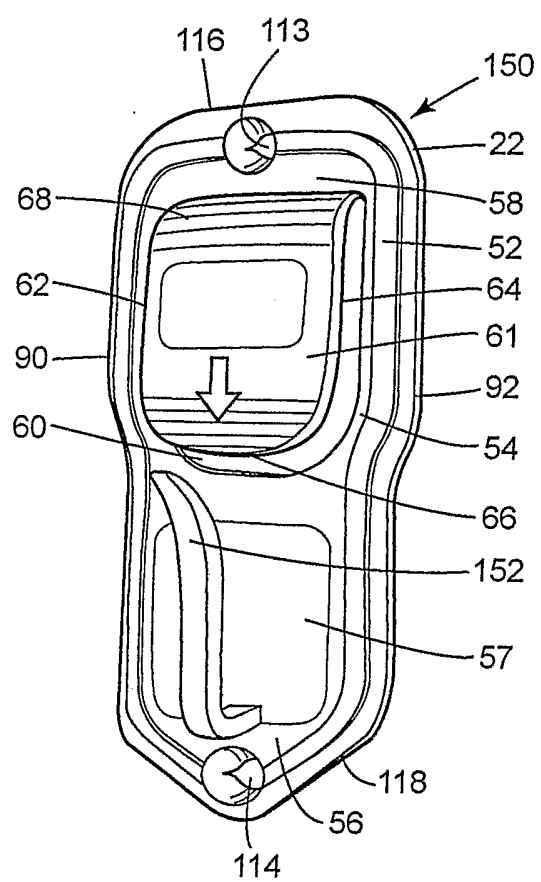
FIG. 9

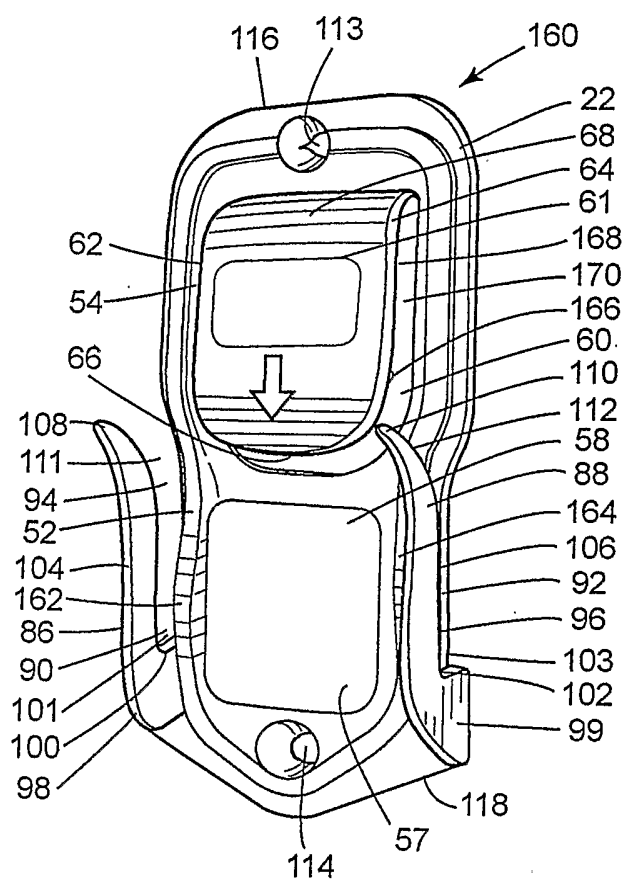
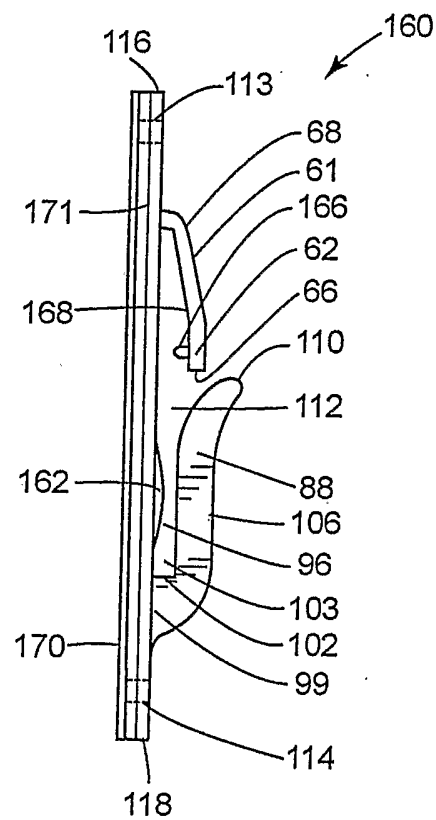
FIG. 10

FIG. 11



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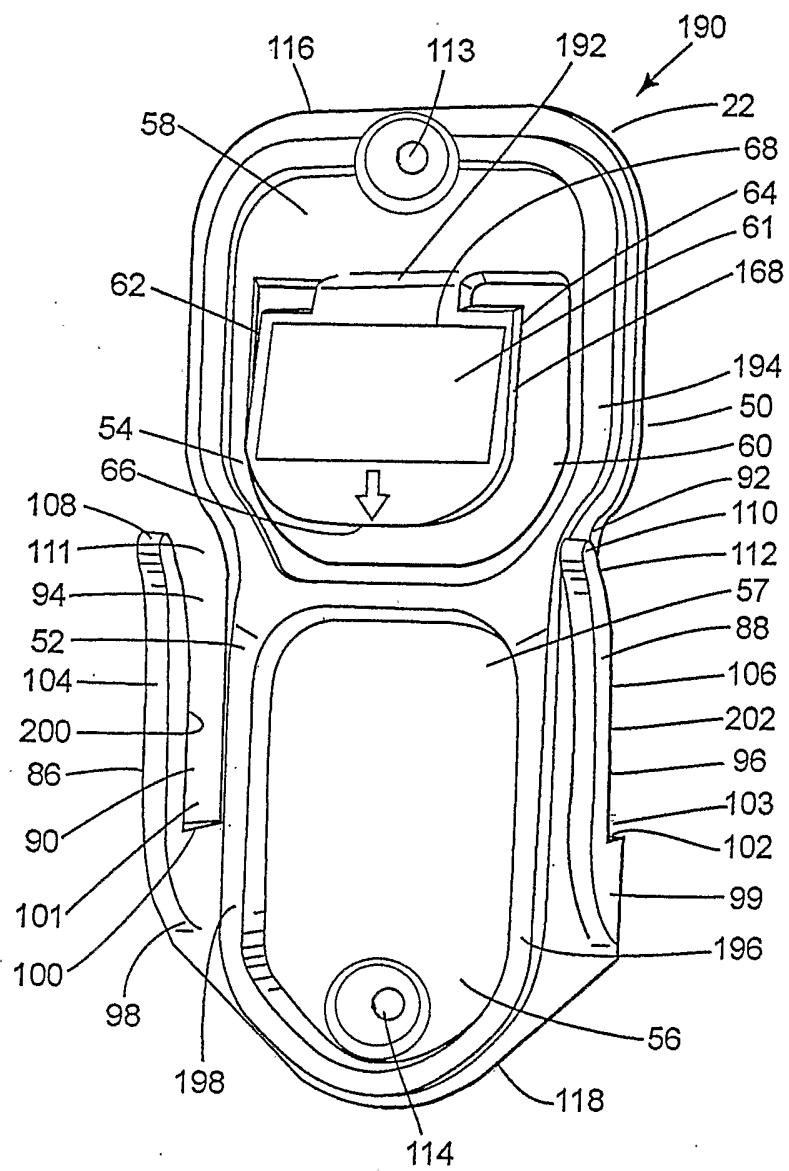
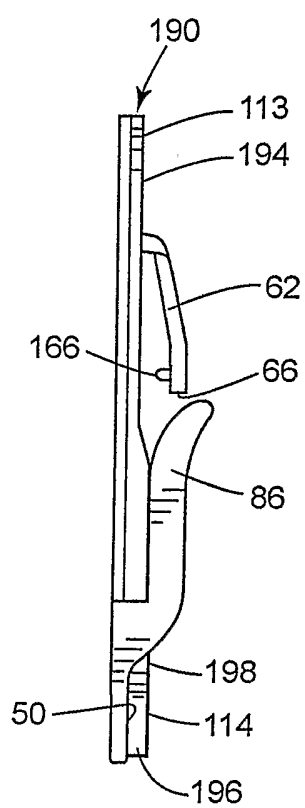
FIG. 12

FIG. 13



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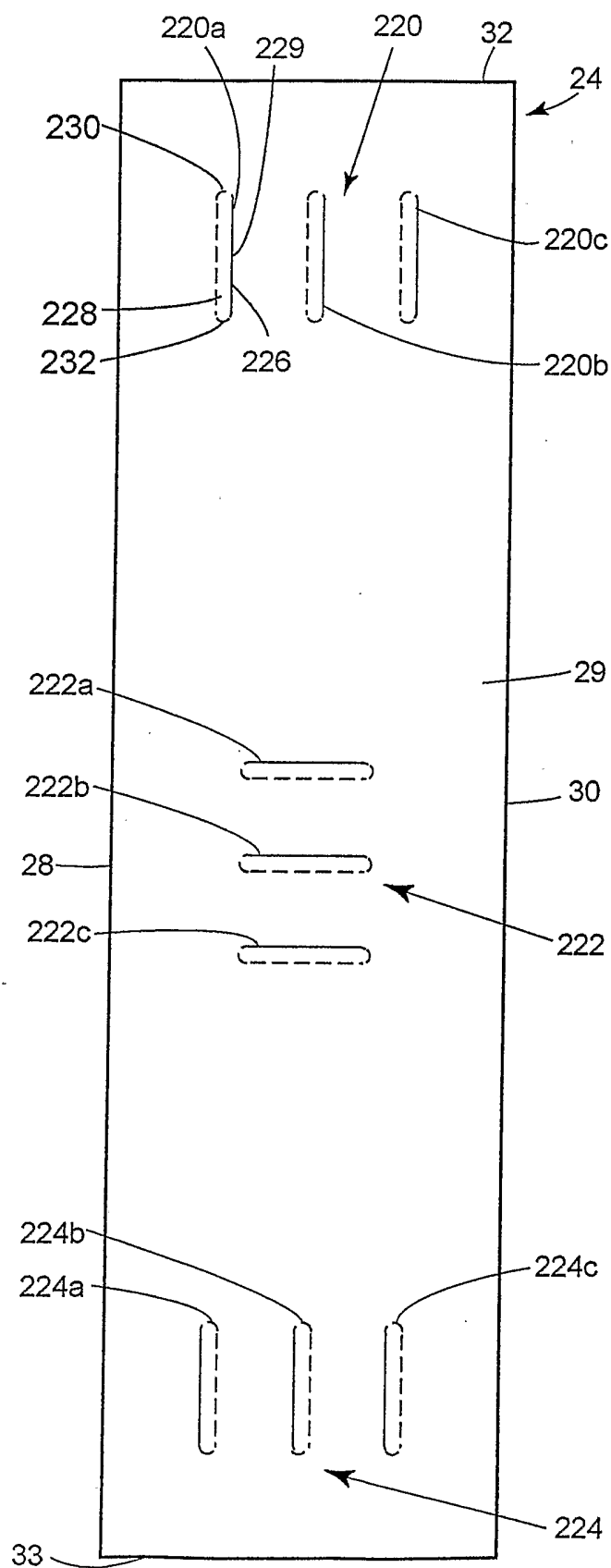
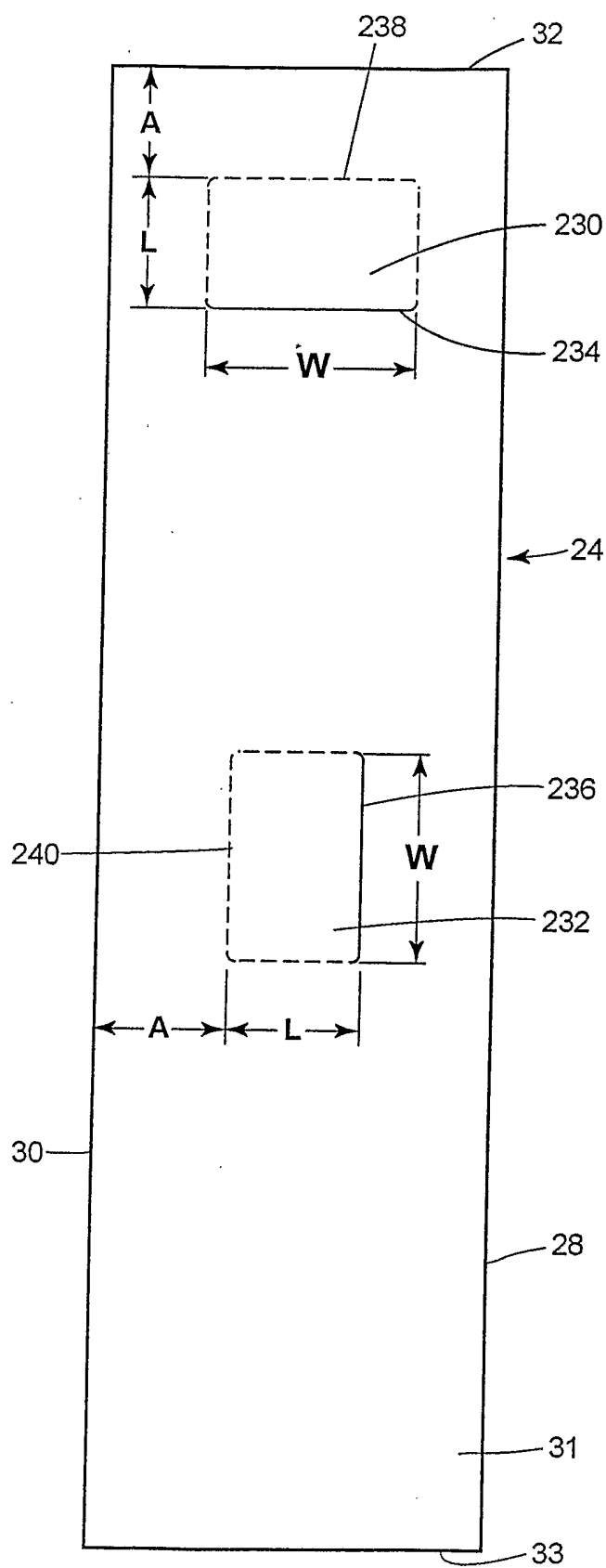
FIG. 15

FIG. 16

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/37799

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A47K10/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47K B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 207 403 A (PENNIMAN DAVID T) 4 May 1993 (1993-05-04) the whole document ----	1,2, 8-15,22, 24-27
X	US 3 395 428 A (SCHNABEL FRED C) 6 August 1968 (1968-08-06) cited in the application the whole document ----	22,25, 26,28, 34-43, 45, 51-68, 70-84, 98,99
X	US 2 155 760 A (JOSEPH HY) 25 April 1939 (1939-04-25) cited in the application A the whole document -----	22,25-27
	----- -/--	100

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- *&* document member of the same patent family

Date of the actual completion of the international search

20 April 2004

Date of mailing of the international search report

27/04/2004

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Fordham, A

INTERNATIONAL SEARCH REPORT

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PCT/US 03/37799

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 110 467 A (EMILE DUBE) 12 November 1963 (1963-11-12) cited in the application the whole document	22, 23, 25-29, 31, 33, 34, 100, 103
X	US 5 494 250 A (CHEN WEN-YEN) 27 February 1996 (1996-02-27) cited in the application the whole document	22, 23, 25, 26
X	DE 87 10 763 U (HOLTSCH METALLWARENHERSTELLUNG) 26 November 1987 (1987-11-26) the whole document	22, 25-27
X	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 04, 2 April 2003 (2003-04-02) & JP 2002 369766 A (NICHIREI MAGNET KK; CRECIA CORP), 24 December 2002 (2002-12-24) abstract	63, 65-69, 97-99

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PCT/US 03/37799

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JP 2002369766	A	24-12-2002	NONE	