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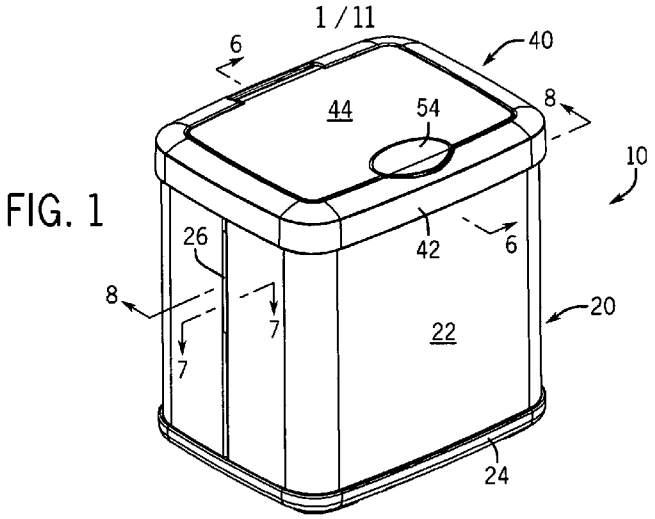


FIG. 1

(57) Abstract: A re-usable dispenser for interfolded cloth sheets is disclosed. The dispenser includes a re-usable top housing that is moves relative to a re-usable bottom housing as the cloth sheets are depleted and a replaceable refill housing including refill cloths.

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CLOTH DISPENSER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable.

STATEMENT CONCERNING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0003] This invention relates to a dispenser for inter-folded cloth sheets. More particularly, the invention is directed to a dispensing system including a floating top and a refill housing.

2. Description of the Related Art

[0004] Individual sheets are frequently dispensed from a stack of interfolded or C-folded sheets. A stack of sheets is generally dispensed from an enclosed dispenser provided with an elongate opening along a surface. For example, U.S. Patent No. 7,568,594 shows an oblong dispenser including a flat stack of sheets formed into an arch-shaped folded stack. One section of the topmost sheet extends out of the opening to be grasped and dispensed by a user. Pulling the topmost sheet out of the box causes one section of the next paper towel to protrude from the opening. This method of "pop-up" sheet dispensing is convenient for many applications, since the next sheet is readily presented for quick access.

[0005] However, as the stack becomes smaller, a larger and larger gap is formed between the opening and the top of the stack, and the pop-up sheet dispensing feature can become unreliable. Frequently, a plastic element in fitted to the opening in an attempt to prevent the adjacent sheets from becoming disconnected from the topmost sheet. Unfortunately, disconnection still occurs frequently, and the user must reach through the opening to pull the next sheet from the box. Various attempts have been made to overcome this problem.

[0006] For example, U.S. Patent No. 7,028,860 shows a dispenser for inter-folded sheets that includes a cartridge with a stack of inter-folded food service sheets secured to a generally planar rectangular core. U.S. Patent No. 3,145,840 shows a boxlike dispenser that has an upper section and a lower section that are severable. However, these dispensers are

generally disposed after one use creating large amounts of waste, and there is either still a gap between the topmost sheet and the opening or it is easy to pull the top of the dispenser off when removing a sheet.

[0007] Therefore, it would be advantageous to have a re-usable dispenser that solves the problem of sheets falling to the bottom of the dispenser and remains in one piece when a sheet is removed.

SUMMARY OF THE INVENTION

[0008] The foregoing needs can be met with a dispenser according to the invention. In one example embodiment the dispenser includes a bottom housing. The bottom housing includes a base trim and a bottom sidewall extending away from the base trim. The bottom sidewall has a bottom sidewall height. The dispenser also includes a top housing. The top housing includes a top panel and a top sidewall extending from the top panel. The top side wall has a top sidewall height, and the top panel has a dispensing opening. The dispenser also includes a refill housing. The refill housing includes a refill base, a refill support extending away from the refill base, a refill sidewall extending away from the refill base, and a plurality of refill cloths. The refill cloths are formed into a generally U-shaped stack by folding a flat stack about a transverse fold axis. The U-shaped stack rests on the refill support, and the refill housing is nested within the bottom housing. The top panel of the top housing rests on a top of the U-shaped stack. The top housing is partially nested within the bottom housing such that the top housing moves relative to the bottom housing as the refill cloths are depleted.

[0009] In one form, the dispenser also includes a means for maintaining a connection between the bottom housing and the top housing. The means for maintaining a connection between the bottom housing and the top housing is a guide slot and a guide pin that travels in the guide slot. Either the guide track or the guide pin is located on an outer surface of the top sidewall, and the other of the guide track and the guide pin is located on the inner surface of the bottom sidewall.

[0010] In a second form, the dispenser may also include a groove and a tab. Either the groove or the tab is located on an outer surface of the top sidewall, and the other of the groove and the tab is located on the inner surface of the bottom sidewall. The grove and the tab extend in the direction of a longitudinal axis which extends along the bottom sidewall

away from the base trim. The tab can slidably engage the groove as the top housing moves relative to the bottom housing.

[0011] In a third form, the dispenser can include a top trim and a flip top. The flip top includes a lid connected to a flange by a hinge. The flange is affixed to the top trim, and the flip top is dimensioned to seal an opening in the top trim.

[0012] In a fourth form, the top housing of the dispenser is transparent.

[0013] In a fifth form, the top sidewall height and the bottom sidewall height of the dispenser are such that the top housing rests on the base trim when the refill cloths are depleted.

[0014] In a sixth form, the dispenser is substantially rectangular.

[0015] In a seventh form, the dispenser is oblong.

[0016] In an eighth form, the refill support of the dispenser has a refill support height that is substantially equal to the bottom sidewall height.

[0017] In a ninth form, the bottom housing of the dispenser has an opening surrounded by the base trim and the refill housing is installed through the opening.

[0018] In a second aspect, the invention provides a dispenser including a bottom housing. The bottom housing includes a base trim and a bottom sidewall, which extends away from the base trim, The bottom sidewall has a bottom sidewall height. The dispenser also includes a top housing. The top housing has a top panel and a top sidewall, which extends away from the top panel and has a top sidewall height. The top panel has a dispensing opening. The dispenser also includes a refill housing. The refill housing includes a refill base, a refill support which extends away from the refill base, a refill sidewall which extends away from the refill base, and a plurality of refill cloths. The refill cloths are formed into a generally U-shaped stack by folding a flat stack about a transverse fold axis. The U-shaped stack rests on the refill support. The refill housing is nested within the bottom housing. The top panel of the top housing rests on a top of the U-shaped stack and the bottom housing is partially nested within the top housing such that the top housing moves relative to the bottom housing as the refill cloths are depleted.

[0019] In a second form, the dispenser may also include a groove and a tab. Either the groove or the tab is located on an inner surface of the top sidewall, and the other of the groove and the tab is located on the outer surface of the bottom sidewall. The grove and the tab extend in the direction of a longitudinal axis which extends along the bottom sidewall

away from the base trim. The tab can slidably engage the groove as the top housing moves relative to the bottom housing.

[0020] In a third form, the dispenser can include a top trim and a flip top. The flip top includes a lid connected to a flange by a hinge. The flange is affixed to the top trim, and the flip top is dimensioned to seal an opening in the top trim.

[0021] In a fourth form, the top housing of the dispenser is transparent.

[0022] In a fifth form, the top sidewall height and the bottom sidewall height of the dispenser are such that the top housing rests on the base trim when the refill cloths are depleted.

[0023] In a sixth form, dispenser is substantially rectangular.

[0024] In a seventh form, the dispenser is oblong.

[0025] In an eighth form, the refill support of the dispenser has a refill support height that is substantially equal to the bottom sidewall height.

[0026] In a ninth form, the bottom housing of the dispenser has an opening surrounded by the base trim and the refill housing is installed through the opening.

[0027] In a third aspect, the invention provides a refill housing for installation in a holder of a dispenser. The refill housing includes a refill base, a refill support extending from the refill base, a refill sidewall extending from the refill base, and a plurality of refill cloths. The refill cloths are formed into a generally U-shaped stack by folding a flat stack about a transverse fold axis. The U-shaped stack rests on the refill support.

[0028] In a second form, the refill base of the refill housing includes a pair of spaced apart raised surfaces. Each raised surface supports an end of the U-shaped stack.

[0029] In a third form, the raised surfaces of the refill base are at least partially angled with respect to the refill base.

[0030] In a fourth form, the top of the U-shaped stack of refill cloths extends above a top edge of the refill sidewall.

[0031] In fifth form, the refill support has a refill support height and the refill sidewall has a refill sidewall height. The refill support height is substantially equal to the refill sidewall height.

[0032] The foregoing and other objects and advantages of the invention will appear in the detailed description which follows. In the description, reference is made to the accompanying drawings which illustrate a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] Fig. 1 is a perspective view of a dispenser in accordance with a first embodiment of the invention including a closed flip top.

[0034] Fig. 2 is a perspective view of a dispenser in accordance with the first embodiment of the invention including an open flip top.

[0035] Fig. 3 is an exploded perspective view of a dispenser in accordance with the first embodiment of the invention.

[0036] Fig. 4 is an exploded perspective view of a dispenser in accordance with the first embodiment of the invention.

[0037] Fig. 5 is an exploded perspective view of a refill housing in accordance with the first embodiment of the invention.

[0038] Fig. 6 is a side elevation, fragmentary view taken along line 6-6 of Fig. 1 showing the flip top of the dispenser in accordance with the first embodiment of the invention.

[0039] Fig. 7 is a top elevation, fragmentary view taken along line 7-7 of Fig. 1 showing a groove and tab of the dispenser in accordance with the first embodiment of the invention.

[0040] Fig. 8 is a cross-sectional view taken along line 8-8 of a dispenser in accordance with the first embodiment of the invention.

[0041] Fig. 9 is a perspective view of a dispenser in accordance with a second embodiment of the invention.

[0042] Fig. 10 is an exploded perspective view of the dispenser of Fig. 9.

[0043] Fig. 11 is a perspective view of a dispenser in accordance with the third embodiment of the invention.

[0044] Fig. 12 is an exploded perspective view of the dispenser of Fig. 11.

[0045] Fig. 13 is an exploded perspective view of the dispenser of Fig. 11.

[0046] Fig. 14 is a cross-sectional view taken along line 14-14 of Fig. 11.

[0047] Like reference numerals will be used to refer to like parts from Figure to Figure in the following description of the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0048] The invention is described in detail below with reference to several embodiments. Such exemplification is for purposes of explanation and discussion only and is not intended to limit in any way the scope of the invention.

[0049] Looking at Figures 1 to 8, there is shown an example embodiment of a dispenser (indicated generally at 10) for dispensing cloth sheets 88. The dispenser 10 is substantially rectangular in shape and includes a bottom housing (indicated generally at 20), a flip top lid (indicated generally at 40), a top housing (indicated generally at 60), and a refill housing (indicated generally at 80). The bottom housing 20, flip top lid 40, and top housing 60 may be fabricated from metallic materials, ceramic materials, or various transparent, translucent, or pigmented polymeric materials, such as polyethylene and polypropylene. In one example embodiment, the bottom housing 20, flip top lid 40, and top housing 60 comprise a pigmented polyolefin such as polyethylene or polypropylene. Each section of the dispenser 10 will be described individually below.

[0050] As indicated in Figures 1 and 2, the bottom housing 20 includes a base trim 24 and a bottom sidewall 22. In a preferred embodiment, both the base trim 24 and the bottom sidewall 22 are substantially rectangular in shape, however, it is contemplated that the base trim 24 and the bottom sidewall 22 could be other shapes such as oblong. The base trim 24 is designed to fit snugly around the bottom edge of the bottom sidewall 22. The bottom sidewall may include a groove 26 extending downward from the top edge of the bottom sidewall 22 for aiding positioning of the other sections of the dispenser. The groove 26 may be located on the surface of the bottom sidewall 22 or the groove 26 may be an opening in the bottom sidewall 22 as shown in Figures 1-4.

[0051] As illustrated in more detail in Figure 6, the flip top lid 40 includes a top trim 42 and a flip top 44 connected to a flange 46 by a hinge 48. The flange is affixed to the top trim. The flip top lid 40 also includes a catch 50 attached to the underside of the flip top 44, a latch 52 attached to the top trim 42, and a release button 54 for opening the flip top 44.

[0052] The top housing 60 is better illustrated in Figures 3-4. The top housing 60 includes a top panel 62 and a top sidewall 64. In a preferred embodiment, the top panel 62 and the top sidewall 64 are substantially rectangular in shape, however, the top panel 62 and the top sidewall 64 could be other shapes such as oblong. The top panel 62 and the top sidewall 64 are preferably substantially the same shape as the base trim 24 and the bottom

sidewall 22. In a preferred embodiment, the top sidewall 64 is dimensioned such that it can fit inside of the bottom sidewall 22, however, the top sidewall 64 may also be dimensioned such that the bottom sidewall 22 fits inside the top sidewall 64. The top panel 62 includes an opening 66.

[0053] In a preferred embodiment, the top panel 62 also includes a tab 68 for slidably engaging groove 26 on the bottom sidewall 22 as shown in greater detail in Figure 7. However, the tab 68 could be located on either the bottom sidewall 22 or the top sidewall 64. The groove would then be located on the other of the bottom sidewall 22 or the top sidewall 64. If the top sidewall 64 is dimensioned such that it can fit inside of the bottom sidewall 22, the tab 68 would be located on either the inner surface of the bottom sidewall 22 or the outer surface of the top sidewall 64. If the top sidewall 64 is dimensioned such that the bottom sidewall 22 can fit inside of the top sidewall 64, the tab 68 would be located on either the outer surface of the bottom sidewall 22 or the inner surface of the top sidewall 64.

[0054] Turning to Figures 3-5, the refill housing 80 includes a refill base 82, a refill sidewall 84 and a refill support 86. The refill base 82, refill sidewall 84 and refill support 86 may be fabricated from metallic materials, ceramic materials, or various transparent, translucent, or pigmented polymeric materials, such as polyethylene and polypropylene. In one example embodiment, the refill base 82, refill sidewall 84 and refill support 86 comprise a transparent polyolefin such as polyethylene or polypropylene.

[0055] The refill housing 80 also includes a plurality of refill cloths 88. Preferably, the refill housing 80 includes 10-50 refill cloths 88; more preferably the refill housing 80 includes 20-40 refill cloths 88; and most preferably the refill housing 80 includes 30 refill cloths 88. The refill cloths 88 may be arranged such that the individual cloths are V-folded, W-folded, or Z-folded.

[0056] In order to create a V-folded stack, the individual sheets are folded into two panels and interlocked such that a portion of the leading panel of the next sheet in a flat stack is positioned between the two panels of the preceding sheet. This configuration enables pop-up because withdrawing one sheet from the dispenser pulls at least a portion of the next sheet out of the dispenser.

[0057] In order to create a Z-folded stack, individual sheets are folded into three panels and interlocked such that a portion of a leading panel of the next sheet in a flat stack is positioned between a center panel and a trailing panel of the preceding sheet. The

configuration causes the withdrawal of one sheet from a dispenser to pull at least a portion of the next sheet out of the dispenser for easier access to the next sheet. In order to provide for more controlled dispensing of a cloth, such as the predictable consistent delivery of a horseshoe-shaped cloth from the first to the last cloth, certain Z-folded stacks are beneficial. For example, it is preferred that the leading panel of the folded stack have a width that is 1% to 95% of the width of the center panel of the folded stack, and that the trailing panel of the folded stack have a width that is 1% to 100% of the width of the center panel of the folded stack. Preferably, the leading panel of the folded stack has a width that is 10% to 60% of the width of the center panel of the folded stack; and more preferably, the leading panel of the folded stack has a width that is 20% to 40% of the width of the center panel of the folded stack. In one non-limiting form, the leading panel of the folded stack has a width that is 30% of the width of the center panel of the folded stack.

[0058] W-folded stacks are created by folding individual sheets into four panels and positioning the leading panel and a first center panel of a subsequent sheet between a second center panel and a trailing panel of the preceding sheet. This interlocked position can provide more reliable pop-up dispensing because more surface area of the sheets is in contact to prevent fallback into the dispenser when the dispenser is nearly empty.

[0059] Turning now to Figure 8, the flat stack of V, Z, or W-folded refill cloths is then formed into a generally U-shaped stack of refill cloths 88 by folding the flat stack about a transverse fold axis. The U-shaped stack of refill cloths 88 is placed in the refill housing 80 so that the bend of the U rests on the refill support 86.

[0060] The dispenser 10 is constructed by inserting the refill housing 80 into an opening in the bottom of the bottom housing 20, so that the refill housing 80 is nested within the bottom housing 20. The top housing 60 is placed on top of the refill housing 80 such that the underside (not shown) of the top panel 62 rests on the topmost refill cloth. The flip top lid 40 is then placed on the top edge of the bottom sidewall 22 such that it covers the top housing 60.

[0061] Turning now to Figures 9 and 10, a second example embodiment of the dispenser 110 is described. The dispenser 110 is substantially rectangular in shape and includes a bottom housing (indicated generally at 120), a top housing (indicated generally at 160), and a refill housing similar to refill housing 80 of the embodiment of Figures 1-8. Each section will be described individually below.

[0062] The bottom housing 120 includes a base trim 124 and a bottom sidewall 122. In a preferred embodiment, both the base trim 124 and the bottom sidewall 122 are substantially rectangular in shape, however, it is contemplated that the base trim 124 and the bottom sidewall 122 could be other shapes such as oblong. The base trim 124 is designed to fit snugly around the bottom edge of the bottom sidewall 122. The bottom sidewall 122 may include a groove 126 extending downward from the top edge of the bottom sidewall 122 for aiding positioning of the other sections of the dispenser. The groove 126 may be located on the surface of the bottom sidewall 122 or the groove 126 may be an opening in the bottom sidewall 122 as shown in Figures 9-10.

[0063] The top housing 160 includes a top panel 162 and a top sidewall 164. In a preferred embodiment, the top panel 162 and the top sidewall 164 are substantially rectangular in shape, however, it is contemplated that the top panel 162 and the top sidewall 164 could be other shapes such as oblong. The top panel 162 and the top sidewall 164 are preferably substantially the same shape as the base trim 124 and the bottom sidewall 122. In a preferred embodiment, the top sidewall 164 is dimensioned such that it can fit inside of the bottom sidewall 122, however, the top sidewall 164 may also be dimensioned such that the bottom sidewall 122 fits inside the top sidewall 164. The top panel 162 includes an opening 166. In a preferred embodiment, the top panel 162 also includes a tab 168 for slidably engaging groove 126 on the bottom sidewall 122.

[0064] The refill housing of the embodiment of Figures 9-10 is similar to refill housing 80 of the embodiment of Figures 1-8. In this regard, the refill housing of the embodiment of Figures 9-10 includes a refill base 182, a refill sidewall (similar to 84 in Figs. 1-8) and a refill support (similar to 86 in Figs. 1-8). The refill housing of the embodiment of Figures 9-10 also includes a plurality of refill cloths 188. The refill cloths 188 may be arranged such that the individual cloths are V-folded, W-folded, or Z-folded. The flat stack of V, Z, or W-folded refill cloths is then formed into a generally U-shaped stack of refill cloths 88 by folding the flat stack about a transverse fold axis. The U-shaped stack of refill cloths 188 is placed in the refill housing of the embodiment of Figures 9-10 so that the bend of the U rests on the refill support as in the embodiment of Figures 1-8.

[0065] The dispenser 110 is constructed by inserting the refill housing into an opening in the bottom of the bottom housing 120, so that the refill housing is nested within the bottom housing 120. The top housing 160 is placed on top of the refill housing as in the

embodiment of Figures 1-8 such that the underside (not shown) of the top panel 162 rests on the topmost refill cloth 188.

[0066] Turning now to Figures 11-14, a third example embodiment of the dispenser 210 is described. The dispenser 210 is substantially rectangular in shape and includes a bottom housing (indicated generally at 220), a top housing (indicated generally at 260), and a refill housing (indicated generally at 280). Each section will be described individually below.

[0067] The bottom housing 220 includes a base trim 224 and a bottom sidewall 222. In a preferred embodiment, both the base trim 224 and the bottom sidewall 222 are substantially rectangular in shape, however, the base trim 224 and the bottom sidewall 222 could be other shapes such as oblong. The base trim 224 is designed to fit snugly around the bottom edge of the bottom sidewall 222. The bottom sidewall 222 may include a guide slot 228 extending in the direction of a longitudinal axis along the bottom sidewall 222 away from the base trim 224 for aiding positioning of the other sections of the dispenser. The guide slot 228 may be located on the surface of the bottom sidewall 222 or the guide slot 228 may be an opening in the bottom sidewall 222 as shown in Figures 11-14.

[0068] The top housing 260 includes a top panel 262, a top sidewall 264, and a top trim 242. In a preferred embodiment, the top panel 262 and the top sidewall 264 are substantially rectangular in shape, however, the top panel 262 and the top sidewall 264 could be other shapes such as oblong. The top panel 262 and the top sidewall 264 are preferably substantially the same shape as the base trim 224 and the bottom sidewall 222. In a preferred embodiment, the top sidewall 264 is dimensioned such that it can fit inside of the bottom sidewall 222, however, the top sidewall 264 may also be dimensioned such that the bottom sidewall 222 fits inside the top sidewall 264. The top panel 262 includes an opening 266. In a preferred embodiment, the top panel 262 also includes a guide pin 270 for slidably engaging guide slot 228 on the bottom sidewall 222. The guide pin 270 may be movable inward for releasing the top housing 260 from the bottom housing 220. In one non-limiting example form, the top housing 260 weighs 5 to 5000 grams.

[0069] The guide pin 270 could be located on either the bottom sidewall 222 or the top sidewall 264. The guide slot 228 is then located on the other of the bottom sidewall 222 or the top sidewall 264. If the top sidewall 264 is dimensioned such that it can fit inside of the bottom sidewall 222, the guide pin 270 is located on either the inner surface of the bottom sidewall 222 or the outer surface of the top sidewall 264. If the top sidewall 264 is

dimensioned such that the bottom sidewall 222 can fit inside of the top sidewall 264, the guide slot 228 is located on either the outer surface of the bottom sidewall 222 or the inner surface of the top sidewall 264.

[0070] As shown in Figure 14, the refill housing 280 includes a refill base 282, a refill sidewall 284 and a refill support 286. The refill housing 280 also includes a plurality of refill cloths 288. The refill cloths 288 may be arranged such that the individual cloths are V-folded, W-folded, or Z-folded. The flat stack of V, Z, or W-folded refill cloths is then formed into a generally U-shaped stack of refill cloths 288 by folding the flat stack about a transverse fold axis. The U-shaped stack of refill cloths 288 is placed in the refill housing 280 so that the bend of the U rests on the refill support 286. The refill base 282 may have a pair of spaced apart raised surfaces 290 such that the raised surfaces 290 support the edges of the U-shaped stack of refill cloths 288.

[0071] The dispenser 210 is constructed by inserting the refill housing 280 into an opening in the bottom of the bottom housing 220, so that the refill housing 280 is nested within the bottom housing 220. The top housing 260 is connected to the bottom housing 220 by means of securing the guide pin 270 in the guide slot 228 of the bottom sidewall 222. The top housing is positioned on top of the refill housing 280 such that the underside (not shown) of the top panel 262 rests on the topmost refill cloth 288. Preferably, the underside of the top panel 262 is smooth, and may be flat or curved.

[0072] Looking at Figure 11, the opening 266 in the top housing 260 has a minor axis 267 and a major axis 269. When the top housing 260 is positioned on top of the refill housing 280 such that the underside (not shown) of the top panel 262 rests on the topmost refill cloth 288, the topmost refill cloth 288 will contact the underside of the top panel 262 of the top housing 260. Certain contact regions between the topmost refill cloth 288 and the underside of the top panel 262 of the top housing 260 are beneficial. For example, it is preferred that a contact length of the topmost refill cloth 288 and the underside of the top panel 262 measured in the direction of the minor axis 267 is 1% to 400% of the length of the minor axis 267. More preferably, the contact length of the topmost refill cloth 288 and the underside of the top panel 262 measured in the direction of the minor axis 267 is 1% to 100% of the length of the minor axis 267; more preferably, the contact length of the topmost refill cloth 288 and the underside of the top panel 262 measured in the direction of the minor axis 267 is 1% to 75% of the length of the minor axis 267; and even more preferably, the contact

length of the topmost refill cloth 288 and the underside of the top panel 262 measured in the direction of the minor axis 267 is 1% to 50% of the length of the minor axis 267. Also, it is preferred that the width of the topmost refill cloth 288 is greater than the length of the major axis 269. These contact lengths provide for more controlled dispensing of the refill cloths 88, such as the predictable consistent delivery of a horseshoe-shaped cloth from the first to the last cloth.

[0073] It is also preferred that the topmost refill cloth 288 and the underside of the top panel 262 have a contact area of 1% to 90% of the area of the underside of the top panel 262. More preferably, the topmost refill cloth 288 and the underside of the top panel 262 have a contact area of 1% to 70% of the area of the underside of the top panel 262; more preferably, the topmost refill cloth 288 and the underside of the top panel 262 have a contact area of 5% to 50% of the area of the underside of the top panel 262; and even more preferably, the topmost refill cloth 288 and the underside of the top panel 262 have a contact area of 5% to 25% of the area of the underside of the top panel 262. These contact areas provide for more controlled dispensing of a cloth, such as the predictable consistent delivery of a horseshoe-shaped cloth from the first to the last cloth.

[0074] Still referring to Figure 11, certain dimensions of the opening 266 in the top housing 260 can provide for more controlled dispensing of a cloth, such as the predictable consistent delivery of a horseshoe-shaped cloth from the first to the last cloth . For instance, the inner edges of the opening 266 at the opposed ends of the major axis 269 are preferably arced at a radius of 1" to 100", more preferably, 1" to 50", more preferably, 1" to 25", and more preferably, 5" to 15".

[0075] Turning now to Figure 12, it is preferred that the bottom sidewall 222 of the bottom housing 220 and the top sidewall 264 of the top housing 260 are transparent so that the refill sidewall 284 of the refill housing 280 can be seen by a user. Specifically, the outer surface of the refill sidewall 284 of the refill housing 280 can be decorated with customized graphics, and the transparent top sidewall 264 and refill sidewall 284 allow a user to see the graphics. A user can then select a refill housing 280 having colors that match the interior of the user's home, and the transparent top sidewall 264 and refill sidewall 284 allow the colors to show through.

[0076] Referring now to Figure 14, the refill housing 280 is shown with the refill cloths 288 spaced from an inner surface of the refill sidewall 284 of the refill housing 280.

However, it is preferred that the refill cloths 288 have a contact area with end panels 291 of the refill sidewall 284 of the refill housing 280. For example, it is preferred that the refill cloths 288 contact 5% to 50% of the area of end panels 291 of the refill sidewall 284 of the refill housing 280; more preferably, the refill cloths 288 contact 10% to 30% of the area of end panels 291; and more preferably, the refill cloths 288 contact 15% to 25% of the area of end panels 291.

[0077] Still referring to Figure 14, it is preferred that the refill support 286 has an upper end 293 of greater width than the lower end of the refill support 286. This provides for enhanced dispensing compared to a support having a plate shape. For example, the upper end 293 can have a somewhat upside down U-shape or the somewhat upside down V-shape. The refill support 286 provides for constant interface force between the underside of the top panel 162 and the topmost refill cloth 188. However, it is contemplated that a spring can be subsitituted for the refill support 286 to provide the constant interface force.

[0078] Having described the construction of example embodiments of dispensers 10, 110, 210 for dispensing refill cloths 88, 188, 288, the operation of the dispensers 10, 110, 210 can now be described. A significant problem with many conventional dispensers is that the sheets fall into the dispenser causing the user to have to reach into the dispenser to get a new sheet. Additionally, most conventional dispensers are designed for only one use, which creates a large amount of waste. The dispensers 10, 110, 210 of the present invention solve both of these problems.

[0079] With regards to the first embodiment described above, the dispenser 10 is ready for use after it has been assembled. A user can withdraw a refill cloth 88 by pressing the button 54 to open the flip top 44. When the button 54 is pressed, the latch 52 releases the catch 50 and the flip top 44 opens. The tab 68 on the top sidewall 64 is slidably engaged with the groove 26 on the bottom sidewall 22 such that the top housing 60 slides down into the bottom housing 20 until it rests on the top sheet of the refill cloths 88. When a user removes a refill cloth 88 from the dispenser 19, the top housing 60 slides down into the bottom housing 20. As the refill cloths 88 are depleted, the top housing 60 continues to slide down further into the bottom housing 20 until the bottom edge of the top housing 60 meets the refill base 82 or the underside of the top panel 62 meets the refill support 86. This effectively solves the problem of fall back into the dispenser because the top refill cloth 88 always touches the opening 66 in the top panel 62. This provides easy access to the refill cloths 88.

[0080] When the refill cloths 88 are depleted, the refill housing 80 is removed from the opening in the bottom of the bottom housing 20. A new refill housing 80 can then be inserted into the bottom of the bottom housing 20 for continued use with less waste than disposing of the entire dispenser 10.

[0081] With respect to the second embodiment described above, the dispenser 110 operates in the same manner, except it does not include a flip top 44. The tab 168 on the top sidewall 164 is slidably engaged with the groove 126 on the bottom sidewall 122 such that the top housing 160 slides down into the bottom housing 120 until it rests on the top sheet of the refill cloths 188. As the refill cloths 188 are depleted, the top housing 160 continues to slide down further into the bottom housing 120 until the bottom edge of the top housing 160 meets the refill base or the underside of the top panel 162 meets the refill support.

[0082] In a different embodiment, the top housing 60 is dimensioned such that the bottom sidewall 22 fits inside the top sidewall 64. In this embodiment, the tab 68 on the top sidewall 64 is slidably engaged with the groove 26 on the bottom sidewall 22 such that the top housing 60 slides down around the bottom housing 20 until it rests on the top sheet of the refill cloths 88. As the refill cloths 88 are depleted, the top housing 60 continues to slide down further around the bottom housing 20 until the bottom edge of the top housing 60 meets the base trim 24 or the underside of the top panel meets the refill support 86 or the top edge of the bottom sidewall 22. When the dispenser 10 is dimensioned such that the bottom edge of the top housing 60 meets the base trim 24, the base trim 24 provides a lip around the bottom of the dispenser 10 that facilitates the lifting of the top housing 60 when the refill housing 80 is replaced. The base trim 24 allows a user to firmly grasp the bottom housing 20 while lifting the top housing 60 rather than struggling to separate the bottom housing 20 from the top housing 60.

[0083] In the third embodiment described above, the dispenser 210 includes a guide slot 228 located in the bottom sidewall 222 and a guide pin 270 located on the outer surface of the top sidewall 264. The dispenser 210 is constructed such that the guide pin 270 fits in the guide slot 228 to control the position of the top housing 260 with respect to the bottom housing 220. The guide pin 270 on the top sidewall 264 is slidably engaged with the guide slot 228 on the bottom sidewall 222 such that the top housing 260 slides down into the bottom housing 220 until it rests on the top sheet of the refill cloths 288. As the refill cloths 288 are depleted, the top housing 260 continues to slide down further into the bottom housing

220 until the bottom edge of the top housing 260 meets the refill base 282, the underside of the top panel 262 meets the refill support 286, the guide pin 270 reaches the bottom of the guide slot 228, or the top trim 242 meets the top edge of the bottom sidewall 222. In a preferred embodiment, the length of the guide slot 228 is such that it does not inhibit movement of the guide pin 270 before the bottom edge of the top housing 260 meets the refill base 282 or the underside of the top panel 262 meets the refill support 286. The inclusion of a guide pin 270 and a guide slot 228 in this embodiment of the dispenser 210 also prevents removal of the top housing 260 from the bottom housing 220 as the guide pin 270 will stop at the top edge 299 of the guide slot 228.

[0084] Any of the dispensers 10, 110, 210 can be manufactured to provide for controlled dispensing forces. For example, refill cloth 288 dispensing forces of 10% to 90% of the weight of the fully loaded dispensers 10, 110, 210 are preferred, with 20% to 80% being more preferred, and with 30% to 60% being more preferred.

[0085] Thus, the invention provides dispensers that allow for one handed, consistent and uniform delivery from the first to the last refill cloth.

[0086] Certain embodiments of the invention has been described in considerable detail. Many modifications and variations to the described embodiments are possible. Therefore, the invention should not be limited to the embodiments described.

I/We claim:

1. A dispenser comprising:

a bottom housing including a base trim, and a bottom sidewall extending away from the base trim and having a bottom sidewall height;

a top housing having a top panel and a top sidewall extending from the top panel and having a top sidewall height, the top panel having a dispensing opening;

a refill housing including a refill base, a refill support extending away from the refill base, a refill sidewall extending away from the refill base, and a plurality of refill cloths formed into a generally U-shaped stack by folding a flat stack about a transverse fold axis, the U-shaped stack resting on the refill support, the refill housing nested within the bottom housing; and

wherein the top panel of the top housing rests on a top of the U-shaped stack and the top housing is partially nested within the bottom housing such that the top housing moves relative to the bottom housing as the refill cloths are depleted.

2. The dispenser of claim 1 further comprising:

a means for maintaining a connection between the bottom housing and the top housing;

wherein the means for maintaining a connection between the bottom housing and the top housing comprises a guide slot and a guide pin that travels in the guide slot, one of the guide track and the guide pin being located on an outer surface of the top sidewall and the other of the guide track and the guide pin being located on the inner surface of the bottom sidewall.

3. The dispenser of claim 1 further comprising:

a groove and a tab, one of the groove and the tab being located on an outer surface of the top sidewall and the other of the groove and the tab being located on the inner surface of the bottom sidewall, the grove and the tab extending in a direction of a longitudinal axis which extends along the bottom sidewall away from the base trim;

wherein the tab can slidably engage the groove as the top housing moves relative to the bottom housing.

4. The dispenser of claim 1 further comprising:

a top trim;

a flip top comprising a lid connected to a flange by a hinge wherein the flange is affixed to the top trim;

wherein the flip top is dimensioned to seal an opening in the top trim.

5. The dispenser of claim 1 wherein the top housing is transparent.

6. The dispenser of claim 1 wherein the top sidewall height and the bottom sidewall height are such that the top housing rests on the base trim when the refill cloths are depleted.

7. The dispenser of claim 1 wherein the dispenser is substantially rectangular.

8. The dispenser of claim 1 wherein the dispenser is oblong.

9. The dispenser of claim 1 wherein the refill support has a refill support height that is substantially equal to the bottom sidewall height.

10. The dispenser of claim 1 wherein the bottom housing has an opening surrounded by the base trim and the refill housing is installed through the opening.

11. A dispenser comprising:

a bottom housing including a base trim and a bottom sidewall extending away from the base trim and having a bottom sidewall height;

a top housing having a top panel and a top sidewall extending away from the top panel and having a top sidewall height, the top panel having a dispensing opening;

a refill housing including a refill base, a refill support extending away from the refill base, a refill sidewall extending away from the refill base, and a plurality of refill cloths formed into a generally U-shaped stack by folding a flat stack about a transverse fold axis, the U-shaped stack resting on the refill support, the refill housing nested within the bottom housing; and

wherein the top panel of the top housing rests on a top of the U-shaped stack and the bottom housing is partially nested within the top housing such that the top housing moves relative to the bottom housing as the refill cloths are depleted.

12. The dispenser of claim 11 further comprising:

a means for maintaining a connection between the bottom housing and the top housing;

wherein the means for maintaining a connection between the bottom housing and the top housing comprises a guide slot and a guide pin that travels in the guide slot, one of the guide track and the guide pin being located on an outer surface of the bottom sidewall and the other of the guide track and the guide pin being located on the inner surface of the top sidewall.

13. The dispenser of claim 11 further comprising:

a groove and a tab, one of the groove and the tab being located on an inner surface of the top sidewall and the other of the groove and the tab being located on the outer surface of the bottom sidewall, the groove and tab extending in a direction of a longitudinal axis which extends along the bottom sidewall away from the base trim;

wherein the tab can slidably engage the groove as the top housing moves relative to the bottom housing.

14. The dispenser of claim 11 further comprising:

a top trim;

a flip top comprising a lid connected to a flange by a hinge wherein the flange is affixed to the top trim;

wherein the flip top is dimensioned to seal an opening in the top trim.

15. The dispenser of claim 11 wherein the top housing is transparent.

16. The dispenser of claim 11 wherein the top sidewall height and the bottom sidewall height are such that the top housing rests on the base trim when the refill cloths are depleted.

17. The dispenser of claim 11 wherein the dispenser is substantially rectangular.

18. The dispenser of claim 11 wherein the dispenser is oblong.

19. The dispenser of claim 11 wherein the refill support has a refill support height that is substantially equal to the bottom sidewall height.

20. The dispenser of claim 11 wherein the bottom housing has an opening surrounded by the base trim and the refill housing is installed through the opening.

21. A refill housing for installation in a holder of a dispenser, the refill housing comprising:

a refill base;

a refill support extending from the refill base;

a refill sidewall extending from the refill base; and

a plurality of refill cloths formed into a generally U-shaped stack by folding a flat stack about a transverse fold axis, the U-shaped stack resting on the refill support.

22. The refill housing of claim 21 wherein the refill base includes a pair of spaced apart raised surfaces, each raised surface supporting an end of the U-shaped stack.

23. The refill housing of claim 22 wherein the raised surfaces are at least partially angled with respect to the refill base.

24. The refill housing of claim 21 where a top of the U-shaped stack of refill cloths extends above a top edge of the refill sidewall.

25. The refill housing of claim 21 wherein:

the refill support has a refill support height and the refill sidewall has a refill sidewall height; and

the refill support height is substantially equal to the refill sidewall height.

FIG. 1

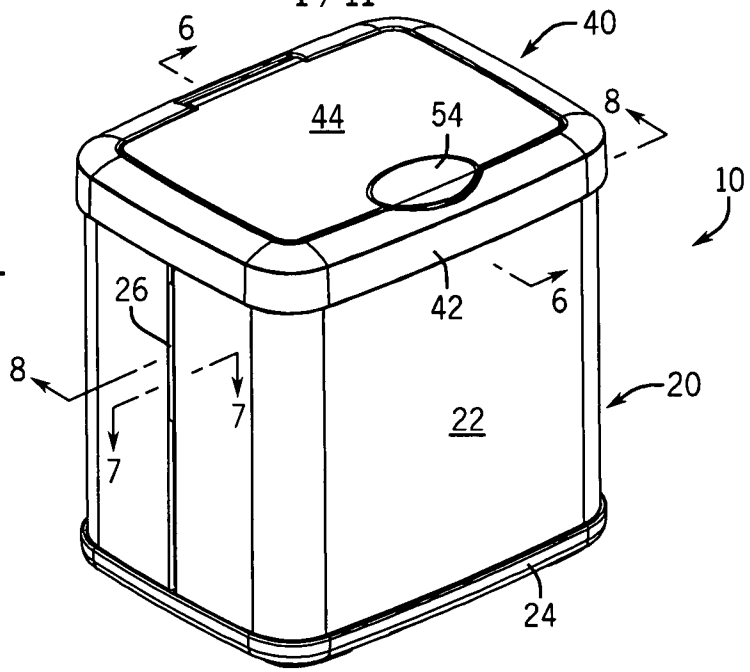

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FIG. 2

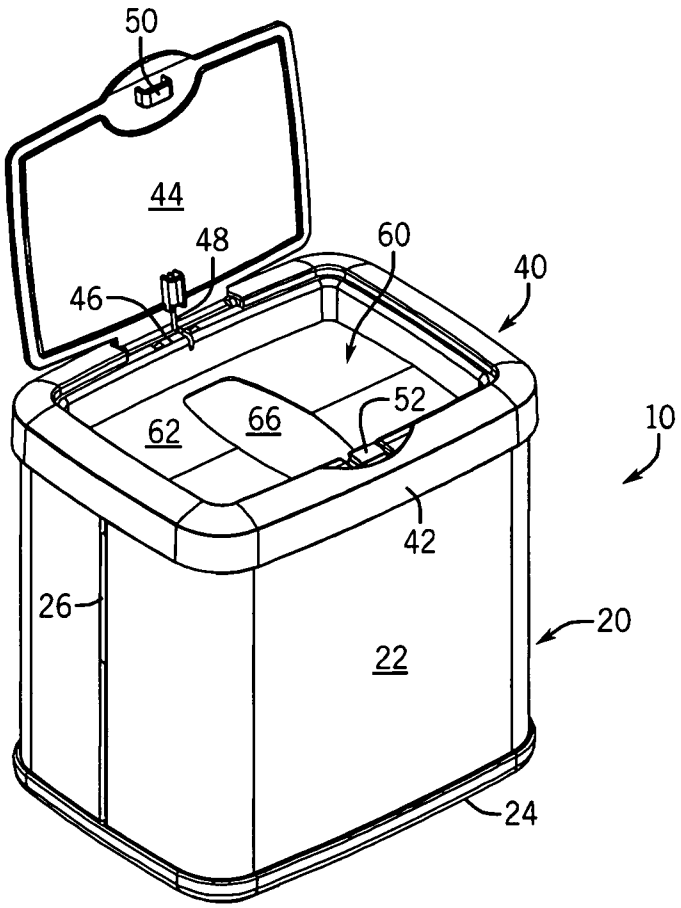
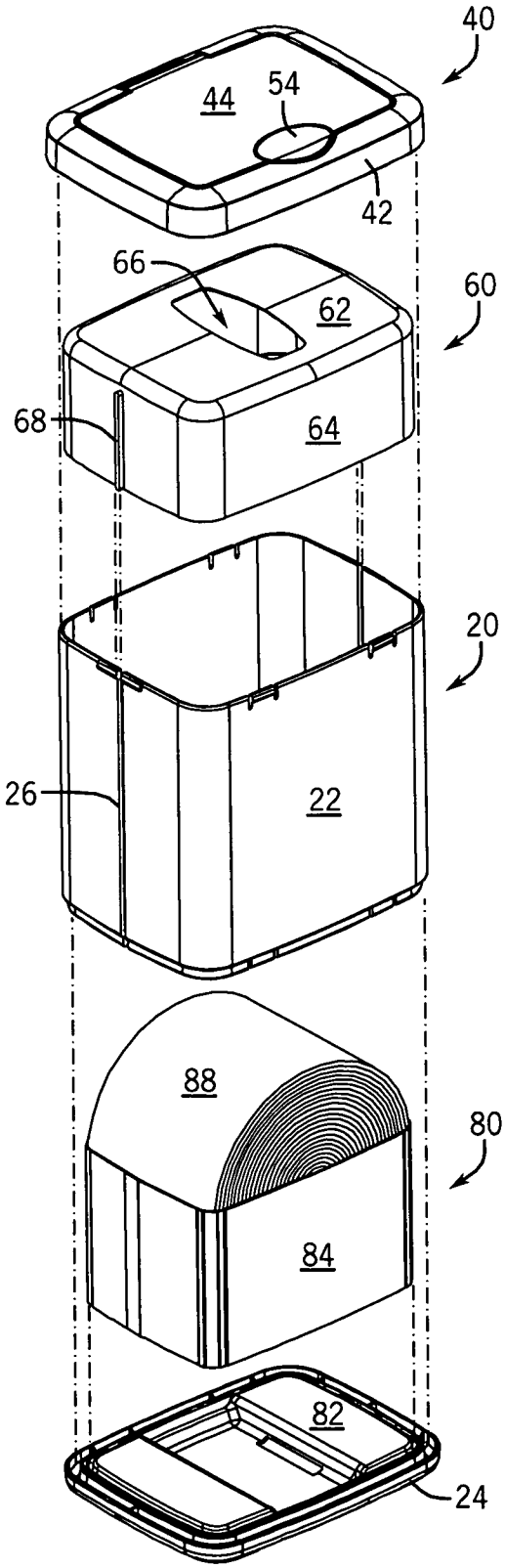

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FIG. 3



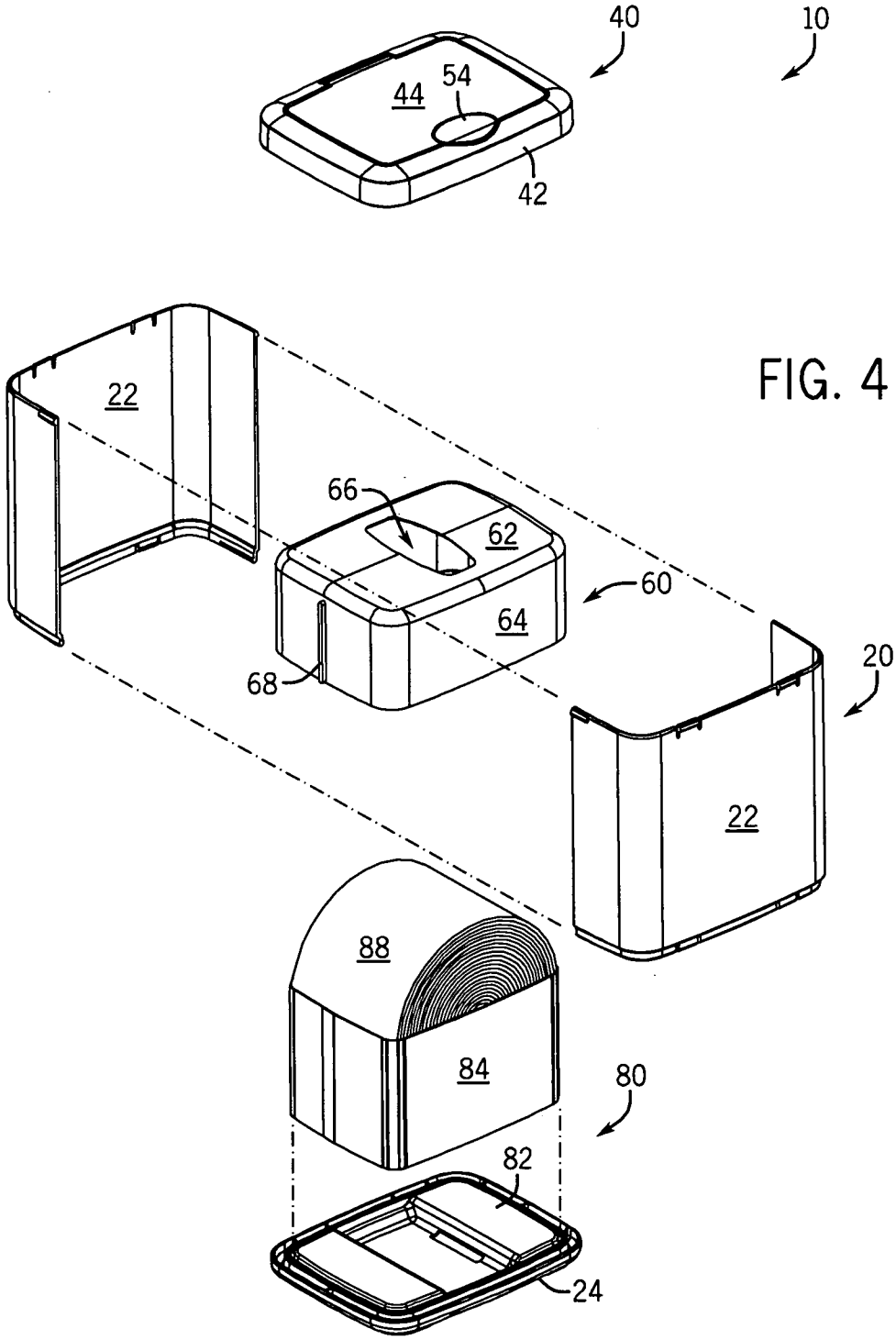


FIG. 4

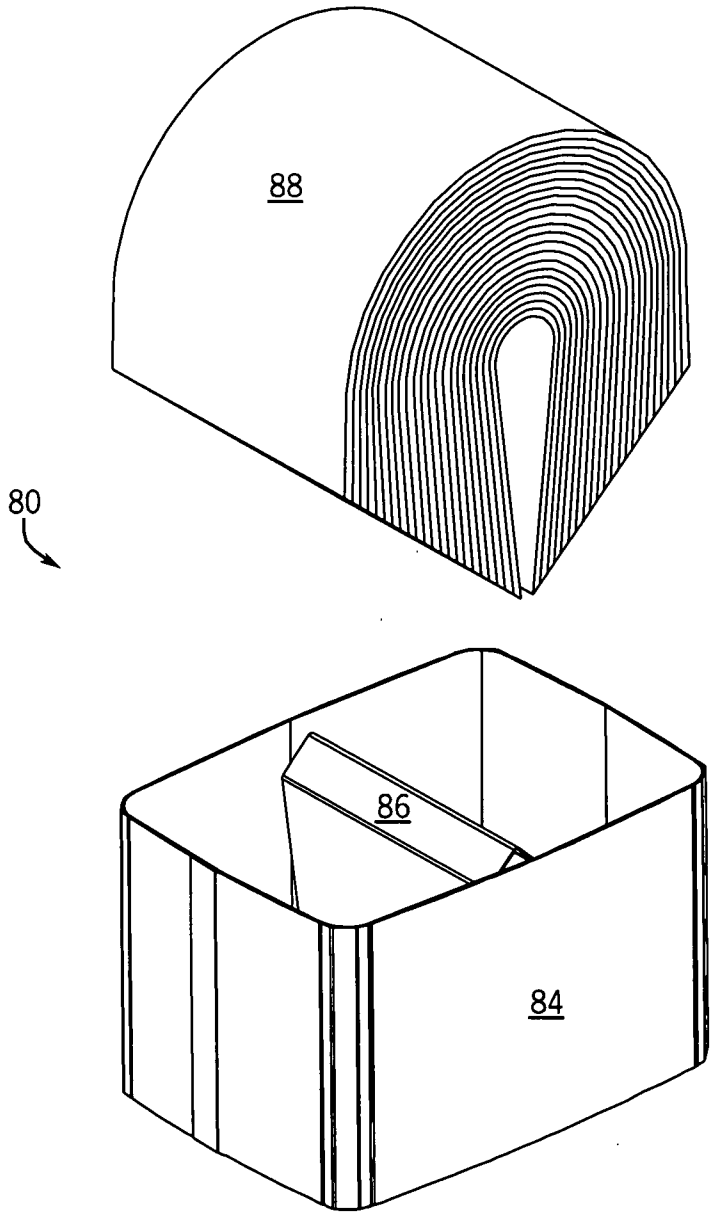


FIG. 5

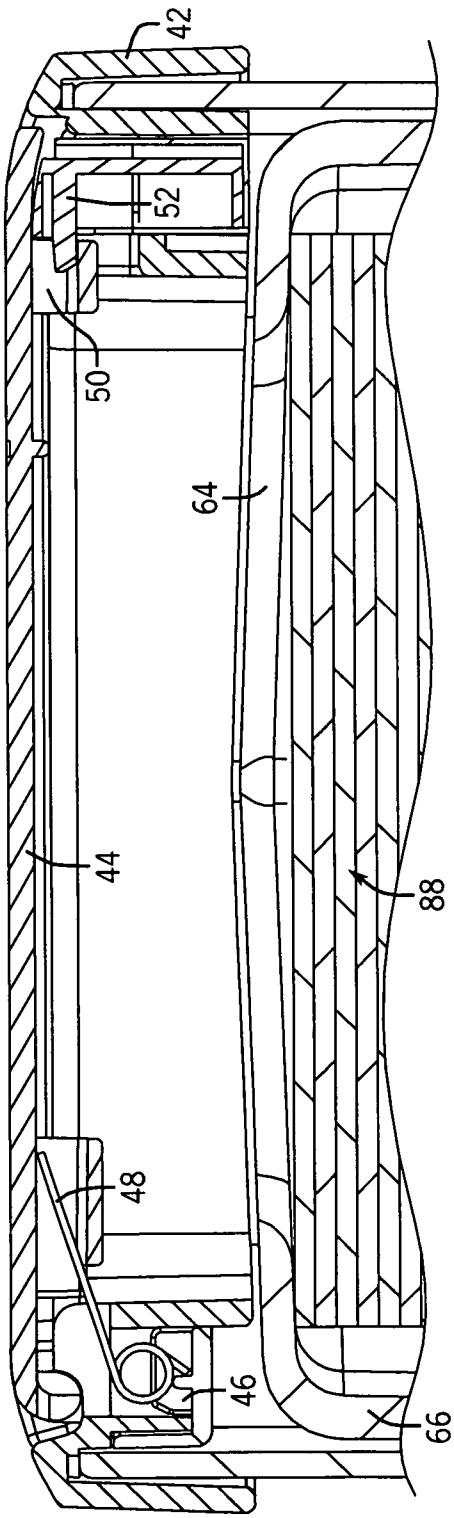


FIG. 6

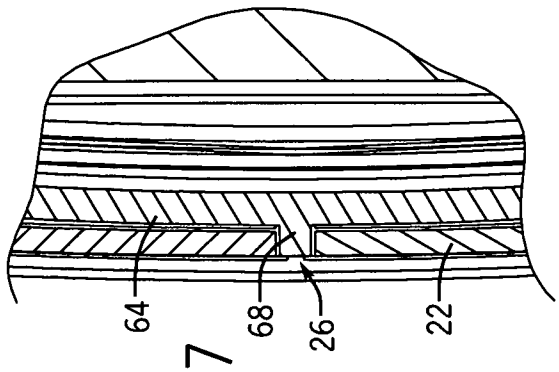


FIG. 7

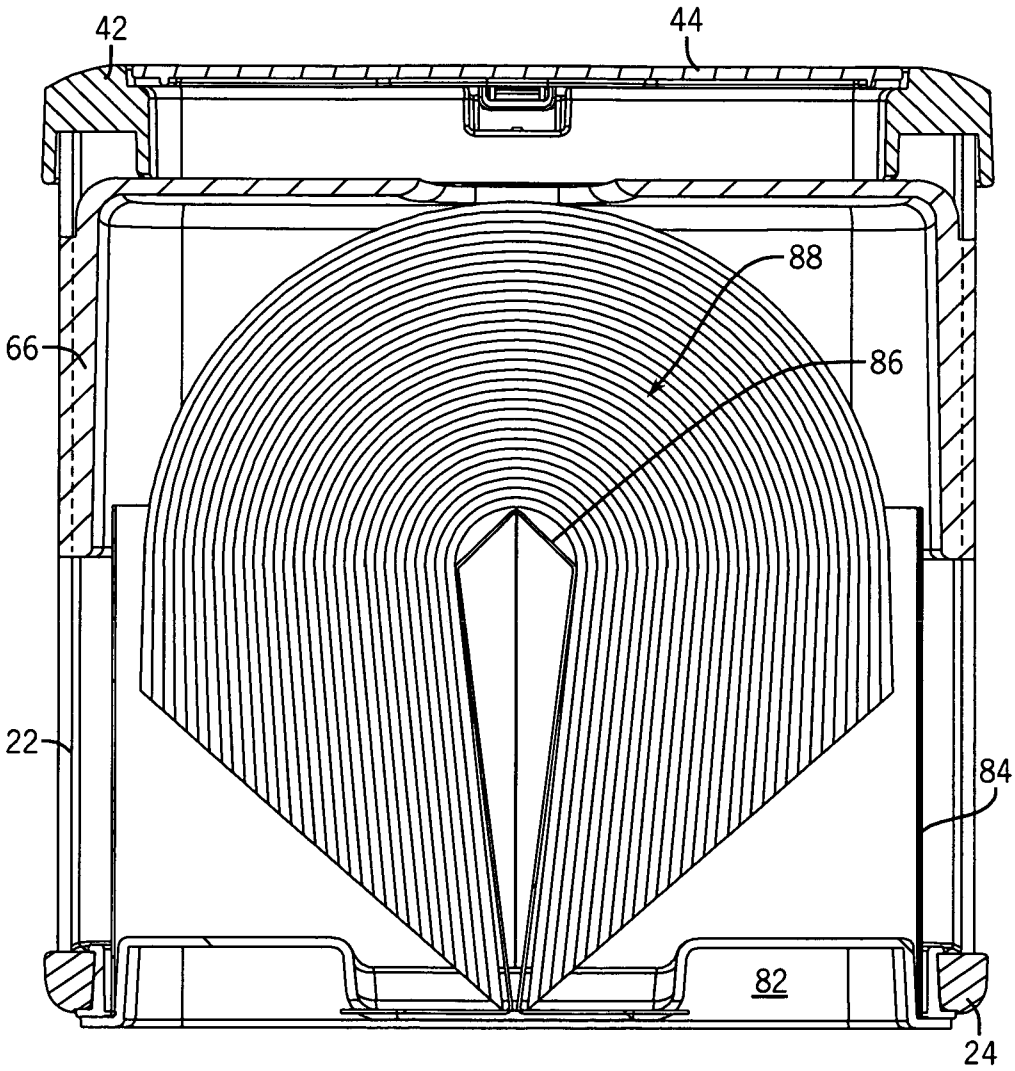
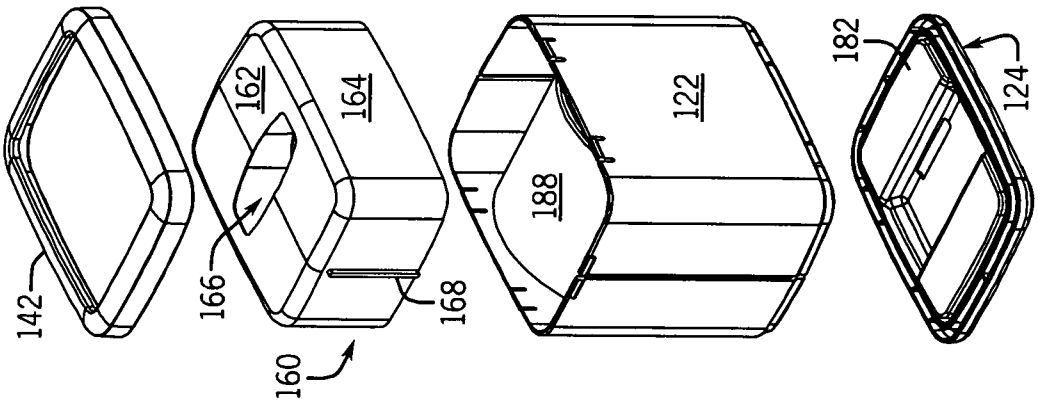


FIG. 8

FIG. 10


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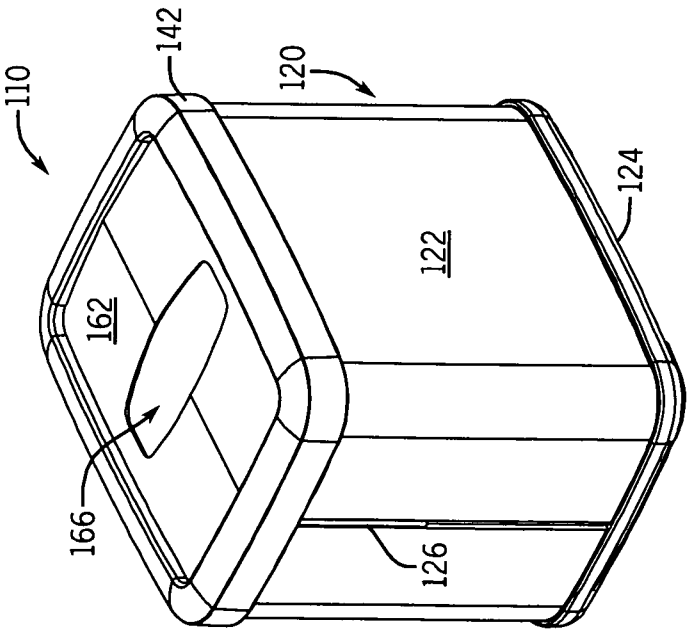

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FIG. 9

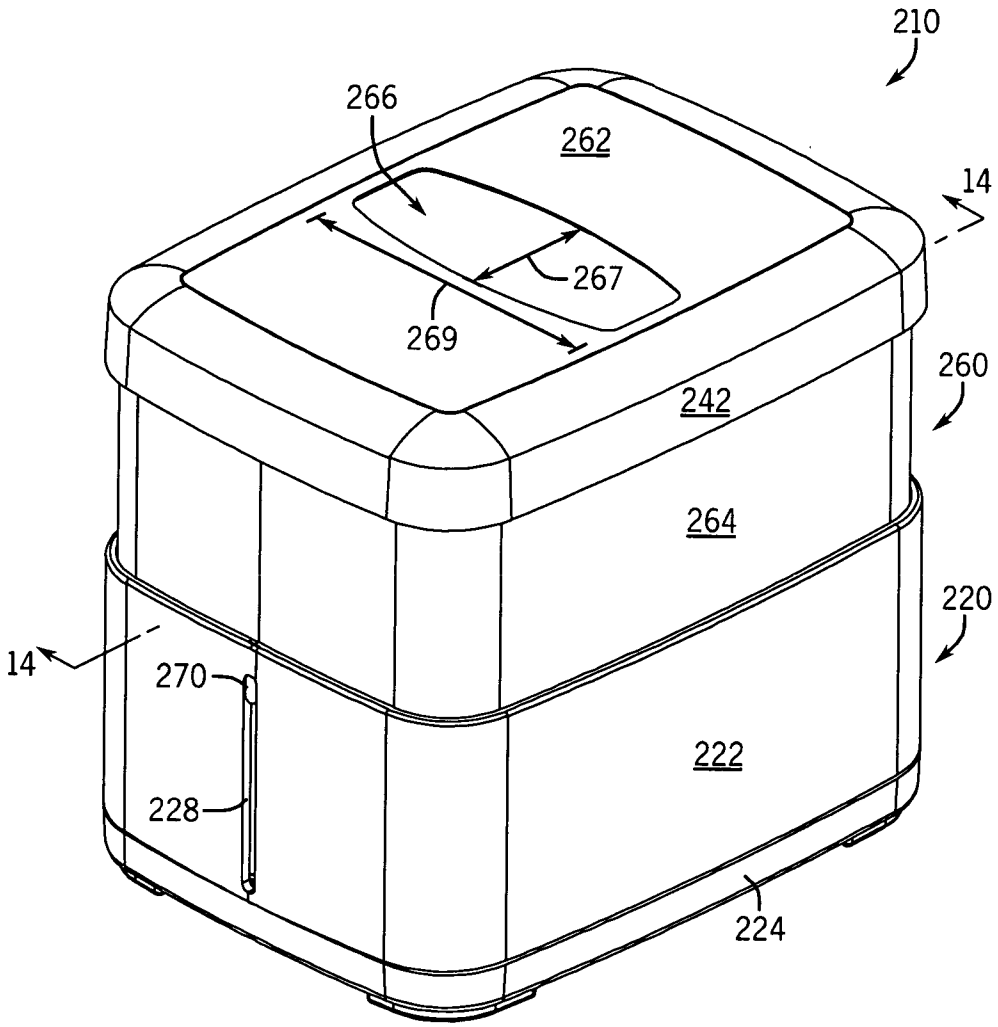


FIG. 11

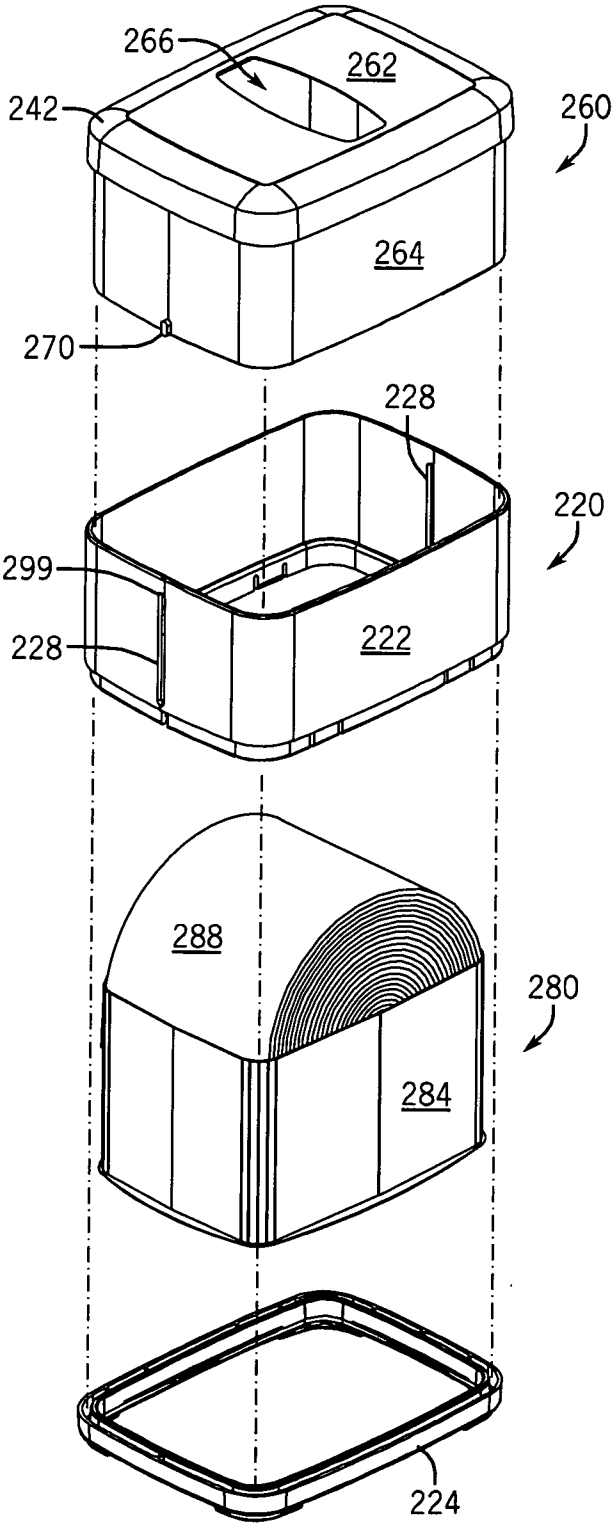


FIG. 12

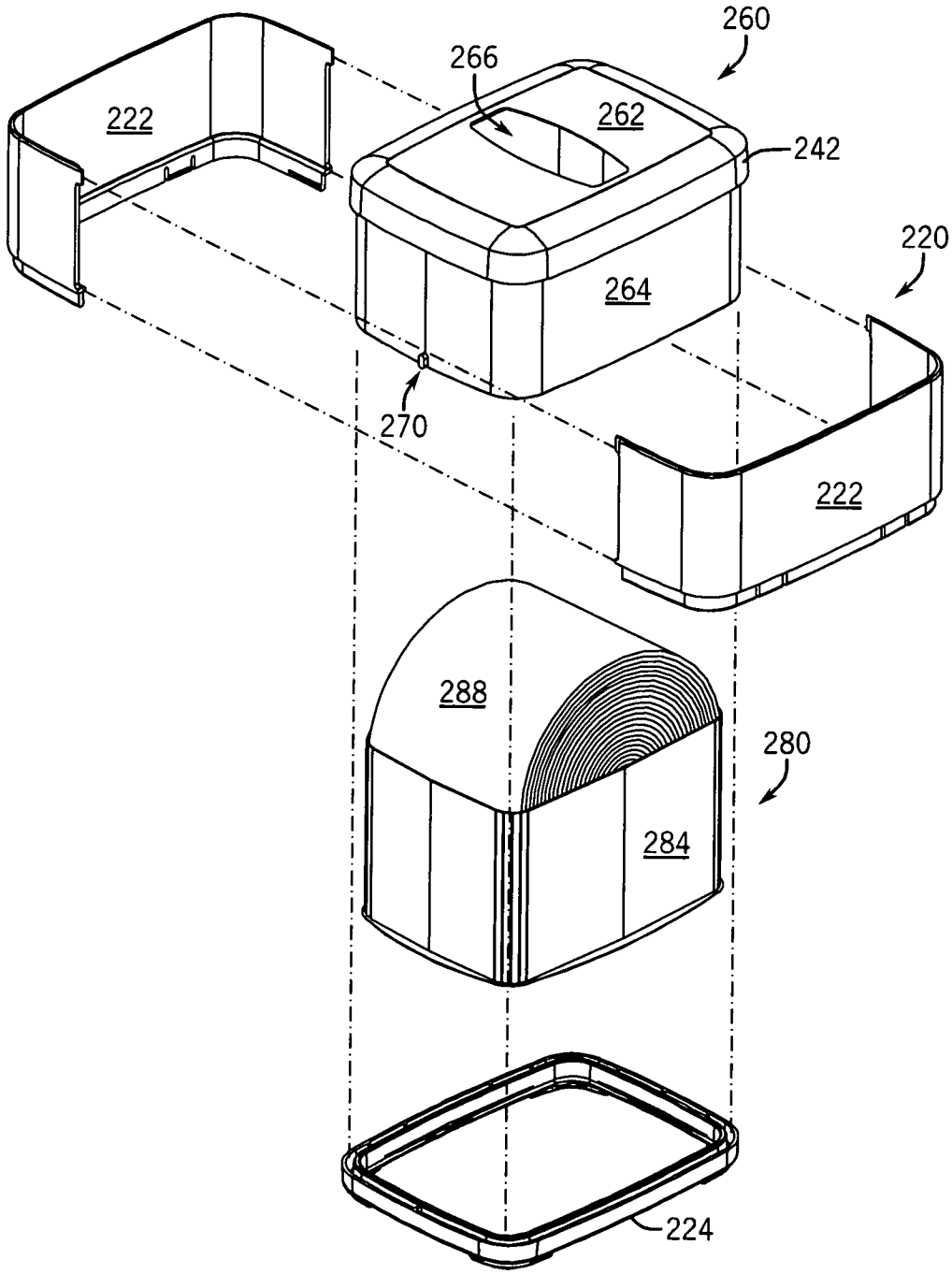


FIG. 13

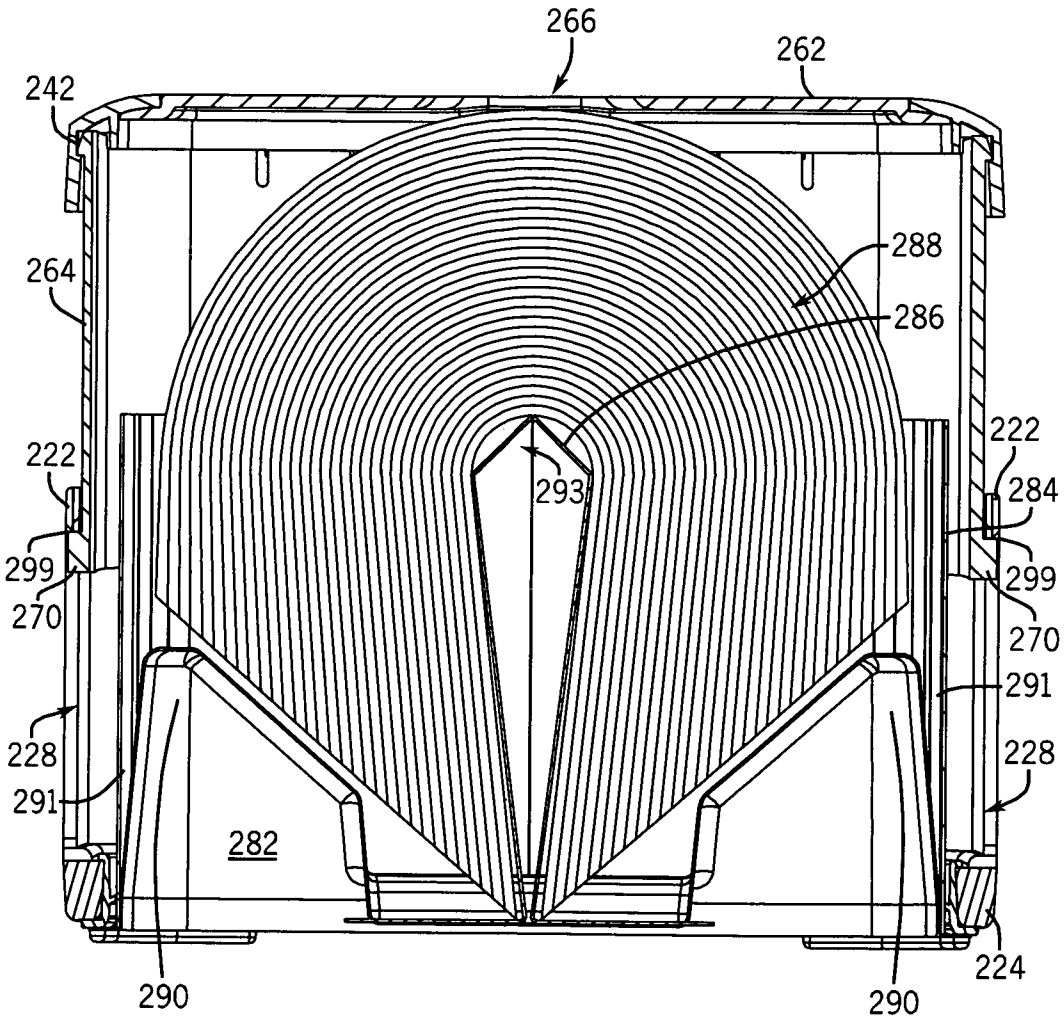

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FIG. 14

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/000988

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47K10/42 B65D83/08
ADD.

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)
A47K B65D

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 456 843 A (PLANNER THOMAS H) 22 July 1969 (1969-07-22) column 2, line 56 - column 3, line 59; figures 1-6	1,11

X	US 3 209 941 A (KRAKE KENNETH V) 5 October 1965 (1965-10-05) column 2, line 38 - column 4, line 12; figure 4	21-25

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 August 2011	01/09/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Zuurveld, Gerben

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2011/000988

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3456843 A	22-07-1969	NONE	
US 3209941 A	05-10-1965	NONE	