Feb. 23, 1960 M. I. BURG 2,925,950

HAT-BOX CONSTRUCTION

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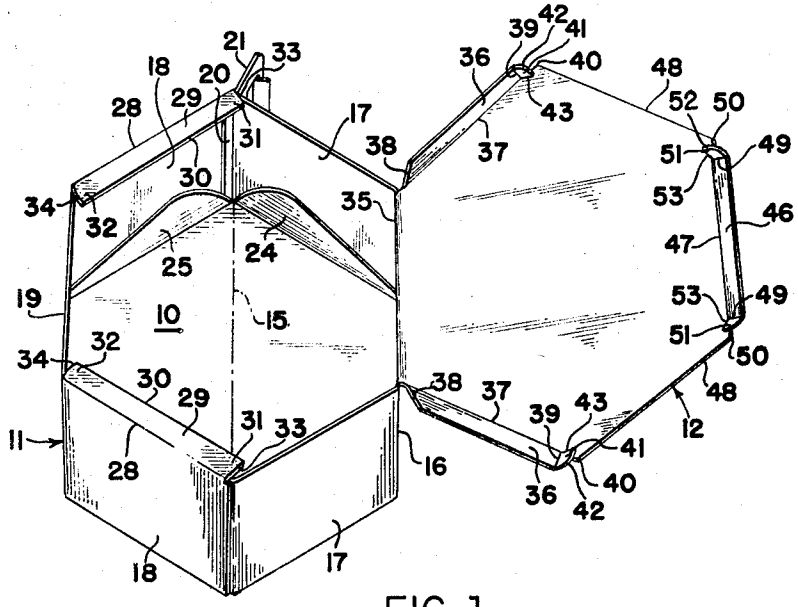


FIG. 1

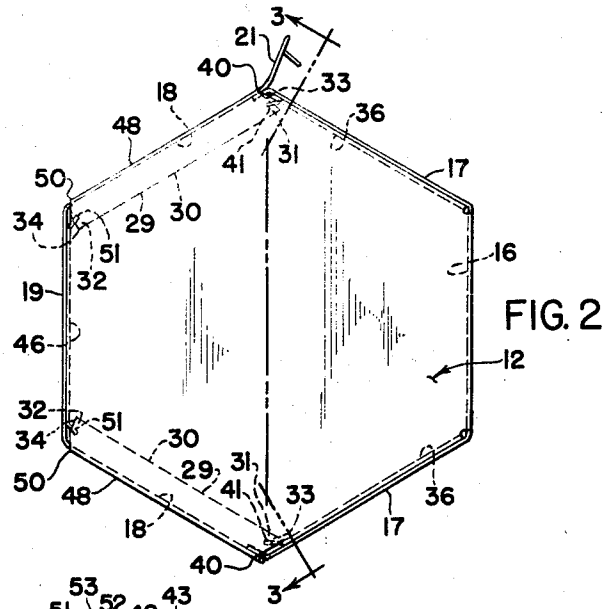


FIG. 2

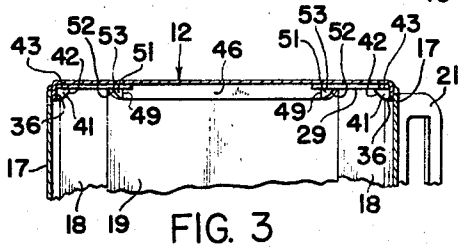


FIG. 3

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FIG. 4

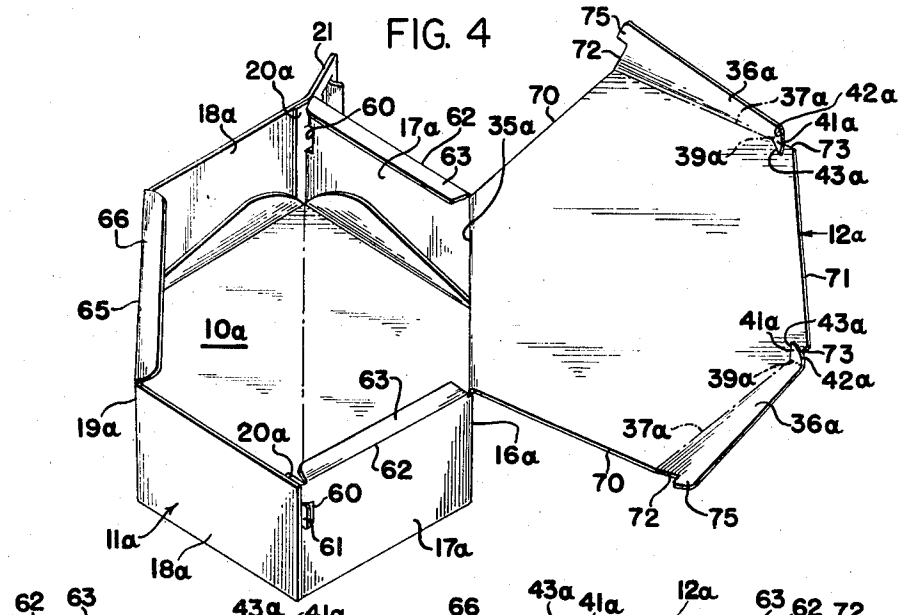
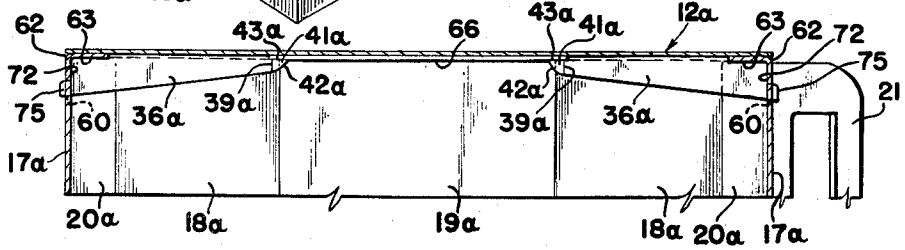


FIG. 6



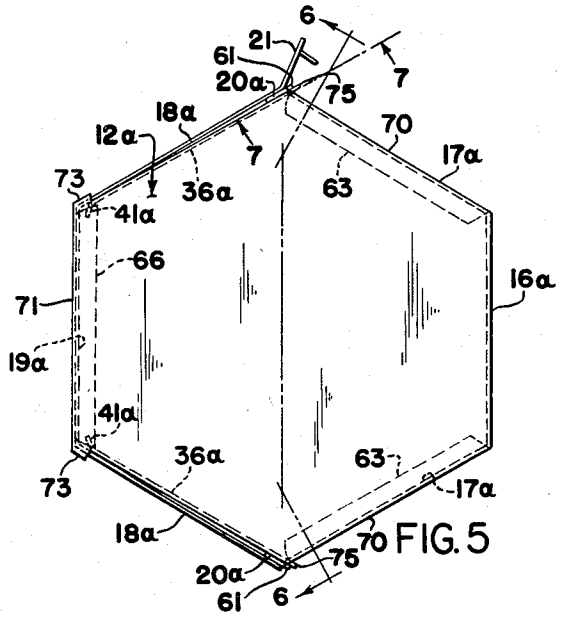


FIG. 5

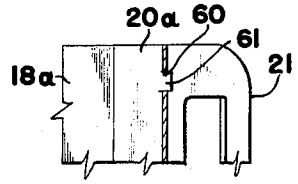


FIG. 7

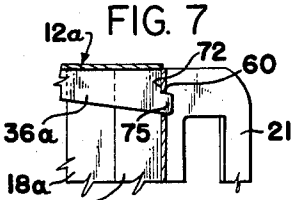


FIG. 8

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HAT-BOX CONSTRUCTION

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Application July 14, 1958, Serial No. 748,411

3 Claims. (Cl. 229—45)

This invention relates generally to containers, and is especially concerned with a container construction of the hat-box type.

The particular embodiment of the present invention, which is illustrated in the drawings and which will be described hereinafter in greater detail, comprises generally a polygonal container having a hinged lid or cover and including novel means for releasably retaining the cover in its closed condition.

It is one object of the present invention to provide a container of the type described which includes a novel arrangement of flaps and locking tab adapted to automatically interengage upon closure of the cover, to effectively retain the cover closed, reinforce and rigidify the entire container structure, and be capable of quick and easy release for opening the cover.

It is a more particular object of the present invention to provide an improved hat-box construction of the type described for use in conjunction with collapsible hat boxes, wherein the entire structure is capable of completely flat collape for ease of handling and economy of space in storage and transit.

It is a further object of the present invention to provide a container construction having the advantageous characteristics mentioned in the preceding paragraphs which is extremely simple, durable and reliable, and which is capable of economical manufacture for sale at a reasonable price.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

In the drawings:

Figure 1 is a top perspective view illustrating a container constructed in accordance with the present invention, with the container cover in open condition;

Figure 2 is a top plan view of the container of Figure 1 with the cover in closed condition;

Figure 3 is a partial sectional view taken substantially along the line 3—3 of Figure 2;

Figure 4 is a view similar to Figure 1 showing another form of the invention;

Figure 5 is a view similar to Figure 2 showing the form of Figure 4;

Figure 6 is a sectional view along the line 6—6 of Figure 5;

Figure 7 is a partial sectional view along the line 7—7 of Figure 5, with the container open; and

Figure 8 is a view similar to Figure 7, with the container closed.

Referring now more particularly to the drawings, the container there illustrated includes a bottom wall of equilateral polygonal or hexagonal configuration, generally

designated 10, and an upstanding side wall 11 extending peripherally about the bottom wall. Hingedly connected to an upper region of the side wall 11 is a cover 12 of equilateral polygonal or hexagonal configuration substantially congruent to the bottom wall 10 and swingable between open and closed conditions as illustrated in Figures 1 and 2, respectively.

The hexagonal bottom wall 10 may be provided with a bisecting crease or fold line 15 extending between a pair of opposed, distal points or side-edge junctures of the bottom wall, for a purpose appearing presently. The side wall 11 follows the outline configuration of the hexagonal bottom wall 10 to define a plurality of joined, upstanding panels extending respectively along the bottom-wall edges.

More specifically, the generally rectangular, upstanding panels constituting the peripheral side wall 11 include a rear panel 16 extending along the rear side or edge of the bottom wall, a pair of rear side panels 17 respectively extending forward and laterally outward from opposite sides of the rear panel along respective rear side edges of the bottom wall, a pair of front side panels 18 each extending forward and laterally inward from the forward region of a respective panel 17 and along respective front side edges of the bottom wall, and a front-wall panel 19 extending laterally between the front regions of panels 18 along the front side edge of the bottom wall. The side-wall panels 16–19 are preferably hingedly connected together along their vertical intersections, as by vertical fold lines or creases, and may include a glue flap 20 on one panel 17 hingedly and adhesively secured to the adjacent panel 18. A handle flap or extension 21 may be provided on the panel 18 adjacent to and extending outward beyond the adjacent panel 17 to facilitate manual carrying of the container.

The bottom wall 10 is hingedly connected along its rearward side edge to the lower edge of rear panel 16, and hingedly connected along its front side edge to the lower edge of the front panel 19; and if desired, the bottom wall may be integral with and connected by a score line or fold to the lower edges of the rear and front panels 16 and 19. In addition, the bottom wall 10 is connected along its rear side edges to the rear side panels 17 by gussets 24, and similarly being connected along its front side edges to the front side panels 18 by gussets 25, only one of each of gussets 24 and 25 being visible in the drawing. By this construction, the bottom wall 10 is foldable upward along its crease 15, and by virtue of the gussets 24 and 25, the rear and front panels 16 and 19 are movable toward each other, as are each pair of side panels 17 and 18. The bottom wall 10 and side wall 11 are thus collapsible to a substantially flat condition.

Hingedly connected along the upper edge of each front side panel 18, as by a horizontal fold or crease 28, and extending substantially the entire length of the respective front side panel is a flap 29. Each flap 29 is bent, as along the connecting crease 28, to extend inward from the associated panel 18. While the hinged-flap connections or creases 28 of each flap 29 are substantially coextensive with the upper edge of the respective panel 18, the inner or free edge 30 of each flap is preferably longer than the hinged connection so that the opposite end portions 31 and 32 of each flap are located in position inward of and directly behind the panels 17 and 19, respectively. That is, the rear end portion 31 of each flap 29 is located behind the rear side panel 17, while the front end portion 32 of each flap 29 is located behind the front panel 19. Further, the rear end edge 33 may be straight, as illustrated, and located adjacent to and spaced inward from the inner surface of the panel 17, while the front end edge 34 of the flap 29 may be curved, and located in inwardly spaced relation with

respect to the inner surface of the front panel **19**. This, of course, may apply to both panel flaps **29**.

The hexagonal equilateral-shaped cover **12** has one side edge hingedly connected to the upper edge of rear panel **16**, as by an integral fold or crease **35** to connect the cover for swinging movement between the open position of Figure 1 extending outward and rearward from the rear panel, and the closed position of Figures 2 and 3 extending inward and forward from the rear panel. In the closed-cover position, it will be observed that the side edges of the cover extend respectively along and in coextensive contiguity with the upper edges of the side wall panels.

Extending from the cover edges adjacent to the rear cover edge or fold line **35** and extending contiguously along the panel **17** in the closed-cover condition are a pair of cover flaps **36**. Each of the cover flaps **36** is integrally connected to the cover **12** along its respective cover edge by a crease or fold line **37**, and the flaps are bent to depend interiorly of the peripheral wall **11** each along and in facing engagement with the inner surface of the adjacent rear side panel **17**. Each of the flaps **36** extends from approximately the adjacent juncture of fold lines **35** and **37**, there being beveled along its end edge **38**, and extends therefrom toward and terminates short of the next adjacent juncture of cover edges. That is, each of the cover flaps **36** terminates at an end fold or crease **39** remote from the end edge **38** and spaced inward from the adjacent cover edge juncture **40**. Extending from the crease or fold **39** of each flap **36**, and normally resiliently biased angularly inward therefrom is a tab **41**. The tab **41** may be considered as an end extension of the adjacent flap **36**, terminating at its free end proximate to the adjacent juncture or corner **40**, free of the cover proper and resiliently biased to be normally disposed in inwardly extending angular relation with respect to its associated flap **36**. As best seen in Figure 3, the lower edge of tab **41** is preferably curved, as at **42**, extending smoothly from the lower edge of flap **36** and curving upward to the substantially straight upper edge **43** of the tab which is substantially coplanar with the fold line **37**.

In addition, on the cover edge remote from the fold line **35** is provided a flap **46** hingedly connected along the cover edge by a fold or crease **47**. Thus, the flap **46** is on the cover edge spaced from each of the flaps **36** by a respective cover edge **48**. The flap **46** is normally bent along its fold line **47** to depend from the cover proper when the latter is closed for facing engagement with the inner surface of front panel **19**. It will be observed that the flap **46** terminates at its opposite ends in end folds or creases **49** each located adjacent to and short of a respective end of the associated cover edge. That is, the flap **46** terminates at its opposite ends short of the adjacent corners or ends **50** of the cover edges **48**. Extending from each end of the cover flap **46**, hingedly connected to the latter by a respective fold or crease **49**, is a tab **51**. The tabs **51** are normally bent to extend in angulate relation with respect to and inward from the flap **46**, being resiliently deflectable out of such relationship. As best seen in Figure 3, each tab **51** has its lower edge extending smoothly from the lower edge of the flap **46** and curving upward therefrom, as at **52**, terminating at its upper edge **53** which is substantially coplanar with the fold line **47**.

In practice, the tabs **41** and **51** are bent inward along their respective creases **39** and **49** prior to closure of the cover **12**, either during manufacture of the instant container, or during the setting-up operation thereon. In either case, permanent deflection or bending of the creases **39** and **49** is effected to position the tabs **41** and **51** in their angularly inwardly extending relation with respect to their associated flaps, and enable their resilient deflection out of such angulate relation, say into coplanarity with their associated flaps. Of course, the flaps **36** and **46**, and their associated tabs **41** and **51**, may all be swung into coplanar or otherwise substantially flat relation with respect to the cover proper; and, the entire cover may be disposed in flat relation with respect to the collapsed bottom and side walls **10** and **11**, for collapse of the entire container to a minimum size.

In closure of the cover **12**, the flaps **36** are initially guided interiorly of their respective panels **17**, and the tabs **41** temporarily held in substantially coplanar relation with their respective flaps for entry between the proximate panel **17** and the adjacent flap edge **33**. Upon full insertion of the flap **36** interiorly of its adjacent panel **17**, the associated tab **41** is released for return to its inwardly angulate relation and automatic engagement of its upper edge **41** with the undersurface of the adjacent flap end portion **31**.

The flap **46** is guided onto the inward side of panel **19**, with its tabs **51** entering between the latter panel and the flap end edges **34**, the curved tab edges **52** cooperating with the curved flap edges to deflect the tabs from their inwardly angulate disposition, as may be required. Of course, the tabs **51** may be otherwise held in forwardly swung relation for entry between the panel **19** and flap edges **34**. Immediately upon engagement of the tabs **51** downward beyond the adjacent flap end portions **32**, the thus-deflected tabs return to their angulate inward relation having their straight upper edges **53** in engagement with the undersurfaces of the adjacent flap end portions **32**.

As the cover proper is seated, or has its edge portions contiguous to the sides **48** seated on the upper surfaces of the panel flaps **29**, and as each adjacent pair of tabs **41** and **51** is engaged beneath the opposite end portions of a respective flap **29**, it is apparent that inadvertent or accidental opening of the cover is effectively prohibited. Further, lateral or twisting movement of the cover **12** relative to the side wall **11** is deterred or limited by engagement of the ends of flaps **36** and **46** at the creases **39** and **49** with the end edges of the panel flaps **29**. Hence, the container structure is substantially rigidified and reinforced by the hereinbefore-described interlocking closing relationship of the cover **12**.

In order to open the cover and release the afore-described cover-retaining construction, it is only necessary to depress the panel flaps **29** downward, swinging the latter downward and toward their adjacent panels **18**, whereupon the tabs **41** and **51** will be swung by camming action into substantially coplanar relation with their respective cover flaps **36** and **46**, for quick and easy withdrawal of the tabs from between the panel-flap end edges and the adjacent panels, and consequent opening movement of the cover **12** about the fold **35**.

In the embodiment of Figures 4–8, the slightly modified container there illustrated includes a collapsible bottom wall **10*a*** of hexagonal configuration, and an upstanding side wall **11*a*** extending peripherally about the bottom wall. The bottom and side walls are collapsible in the same manner as discussed hereinbefore in connection with the first described embodiment. A hexagonal cover **12*a***, substantially congruent to the bottom wall **10*a***, is hingedly connected along one side edge to an upper region of the side wall **11*a*** for swinging movement between the open and closed conditions of Figures 4 and 5.

The side wall **11*a*** is defined of a plurality of generally rectangular, upstanding panels hingedly connected together along their adjacent side edges, including a rear panel **16*a***, a pair of rear side panels **17*a***, a pair of front side panels **18*a***, and a front panel **19*a***. The side wall panels **16*a***, **17*a***, **18*a*** and **19*a*** may be hingedly connected along their vertical intersections, as by folds or creases, and may include glue flaps **20*a*** each hingedly connected to the forward edge of a rear side panel **17*a***

and adhesively secured to the contiguous region of the adjacent front side panel **18***a*.

As thus far described, the embodiment of Figures 4–8 is substantially identical to that of Figures 1–3, the elements having similar character designations, with the suffix "*a*" in the instant embodiment.

By way of difference, each of the rear side panels **17***a* is provided with a generally vertically elongate slot **60** extending along and closely adjacent to its forward side edge or hinged connection with the adjacent front side panel **18***a* and spaced between the lower and upper edges of the side wall panels. In particular, each slot **60** in the rear side panel **17***a* may be defined by a generally U-shaped cut in such panel, to leave a tab or projection **61** extending rearward from and substantially coplanar with the adjacent front side panel **18***a*. Specifically, the projections **61** extend rearward from and coplanar with the glue flaps **20***a*, which may be considered part of the front side panels.

Hingedly connected along the upper edge of each rear side panel **17***a*, as by a horizontal fold or crease **62**, and extending substantially the entire length of the respective rear side panel, is a flap **63**. Each flap **63** is bent, as along the connecting crease **62**, to extend inward from the associated panel **17***a*. The hinged flap connections or creases **62** are substantially coextensive with the upper edges of the respective panels **17***a*.

In addition, hingedly connected along the upper edge of the front panel **19***a*, as by a horizontal fold or crease **65**, and extending substantially the entire length of the front panel, is a flap **66**. The flap **66** is bent, as along the connecting crease **65**, to extend inward from the associated panel **19***a*.

The cover **12***a* has one side edge hingedly connected to the upper edge of the rear panel **16***a*, as by an integral fold or crease **35***a*, to connect the cover for swinging movement between the open position of Figure 4 extending outward and rearward from the rear panel, and the closed position of Figures 5 and 6 extending inward and forward from the rear panel. In the closed-cover position, it will be observed that the side edges of the cover extend respectively along and in substantially coextensive contiguity with the upper edges of the side wall panels.

Extending from the cover edges adjacent to the front side panels **18***a*, with the cover in closed condition, are a pair of cover flaps **36***a*. Each of the cover flaps **36***a* is integrally connected to the cover **12** along its respective cover edge by a crease or fold line **37***a*, and the flaps are bent to depend interiorly of the peripheral wall **11***a*, each along and in facing engagement with the inner surface of the adjacent front side panel **18***a*. Each of the flaps **36***a* is substantially longitudinally coextensive with its hinge connection or crease **37***a*, which creases each extend from the adjacent end of the rear side edge **70** of the cover toward and terminate adjacent to but short of the adjacent end of the front side edge **71** of the cover. Stated otherwise, each of the cover flaps **36***a* extends from its rear end edge **72** forward along the crease **37***a* and terminates at an end fold or crease **39***a* adjacent to and short of the juncture of front side edge **73** with front edge **71**.

Extending from the crease or fold **39***a* of each cover flap **36***a*, and normally resiliently biased angularly inward therefrom, is a tab **41***a*. Each tab **41***a* may be considered as a forward end extension of the adjacent flap **36***a*, terminating at its free end proximate to the adjacent juncture of front side edge **73** and front edge **71**. Each tab **41***a* is free of the cover proper and resiliently biased to be normally disposed in inwardly extending angular relation with respect to the associated flap **36***a*. As best seen in Figure 6, the lower edge of each tab **41***a* is preferably curved, as at **42***a*, extending smoothly from the lower edge of flap **36***a* and curving upward to the substantially straight upper tab edge **43***a*, which latter edge is substantially coplanar with the fold line **37***a*.

It may also be seen in Figure 6 that each of the cover flaps **36***a* has its rear end portion of relatively great depth and taper in the direction from rear end edge **72** toward front end crease **39***a*. Projecting longitudinally from each flap **36***a* at the rear end edge thereof is a relatively stiff tab, extension or projection **75**. More specifically, the tab or projection **75** projects from the rear end edge **72** of each cover flap **36***a*, substantially coplanar with the respective cover flap, and is spaced from the hinged connection or fold line **37***a* of the respective flap. The rear end projection or tab **75** of each flap **36***a* is spaced from its fold line or crease **37***a* a distance approximately equal to the spacing between each slot **60** and its adjacent top panel edge **62**. Hence, upon swinging movement of the cover **12***a* to its closed position, with the flaps **36***a* disposed inward of respective front side panels **11***a*, each tab **75** enters into and engages through the adjacent slot **60**. This condition is seen in Figures 5 and 6, with the tab **75** projecting rearward through the slot **60** out of the rear side panel **17***a*.

The use and operation of the embodiment of Figures 4–8 is similar to that described hereinbefore in connection with Figures 1–3 regarding retaining engagement of the tab **41***a* beneath the panel flap **66**. However, the tab and slot structure **75**, **60** of the instant embodiment cooperates in a slightly different manner to resist opening of the cover from the construction of Figures 1–3. In particular, twisting motion or like distortion of the closed container is effectively resisted by engagement of the tabs **75** in their respective slots **60**; and, this resistance to twisting or similar distortion serves to maintain the cover in its closed condition.

From the foregoing, it is seen that the present invention provides a container construction which fully accomplishes its intended objects, and is otherwise well adapted to meet practical conditions of manufacture, distribution and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and scope of the appended claims.

What is claimed is:

1. A container comprising a hexagonal bottom wall, an upstanding side wall extending about the periphery of said bottom wall and defining six upstanding panels along respective side edges of said bottom wall, a hexagonal cover substantially congruent to said bottom wall having one side edge hingedly connected to the upper edge of one side wall panel for swinging movement between an open position extending outward from said one panel and a closed position extending inward from said one panel with the side edges of said cover extending respectively along and contiguous to the upper edges of said panels, a pair of panel flaps extending inward from the upper edges of a panel adjacent to and the panel opposite to said one panel for underlying engagement with the contiguous portions of said cover when the latter is closed, a cover flap on the side edge of said cover contiguous to the panel intermediate the panels carrying said panel flaps, said cover flap depending along the inner surface of its contiguous panel when said cover is closed, a tab hinged on the end of said cover flap adjacent to said opposite panel for engagement beneath the flap of the latter panel when said cover is closed, and an end tab on the cover flap end remote from said opposite panel and projecting beyond the respective contiguous cover edge and next adjacent cover edge, said panel adjacent to said one panel being formed with a slot receiving said end tab when said cover is closed, to resist opening movement of said cover.

2. A container according to claim 1, in combination with an additional panel flap extending inward from the upper edge of the other panel adjacent to said one panel

for underlying engagement with the contiguous portion of said cover when the latter is closed, an additional cover flap on the side edge of said cover contiguous to the panel intermediate the panel carrying said additional flap and the panel opposite to said one panel, said additional cover flap depending along the inner surface of its contiguous panel when said cover is closed, an additional tab hinged on the end of said additional cover flap adjacent to said opposite panel for engagement beneath the flap of the latter panel when said cover is closed, and an additional end tab on the end of said additional cover flap remote from said opposite panel and projecting beyond the respective contiguous cover edge and the next adjacent cover edge, said other panel adjacent to said one panel being formed with a slot receiving said additional end tab when said cover is closed, to further resist opening movement of said cover.

3. A container comprising a hexagonal bottom wall, an upstanding side wall extending about the periphery of said bottom wall and defining six upstanding panels along respective side edges of said bottom wall, a hexagonal cover substantially congruent to said bottom wall having one side edge hingedly connected to the upper edge of said one side-wall panel for swinging movement between an open position extending outward from said one panel and a closed position extending inward from said one

panel with the side edges of said cover extending respectively along and contiguous to the upper edges of said panels, three panel flaps extending inward from the upper edges of the panels adjacent to and the panel opposite to said one panel for underlying engagement with the contiguous portions of said cover when the latter is closed, a pair of cover flaps on the side edges of said cover contiguous to the panels intermediate the panels carrying said panel flaps, said cover flaps depending along the inner surfaces of the contiguous panels when said cover is closed, and an end tab on the end of each cover flap remote from said opposite panel and projecting beyond the respective contiguous cover edge and next adjacent cover edge, said panels adjacent to said one panel each being formed with a slot receiving the adjacent end tab when said cover is closed, to resist opening movement of said cover.

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