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C. D. FALLERT

2,887,264

HEAVY-DUTY CONTAINER FOR BULK MATERIAL

Filed March 8, 1957

3 Sheets-Sheet 1

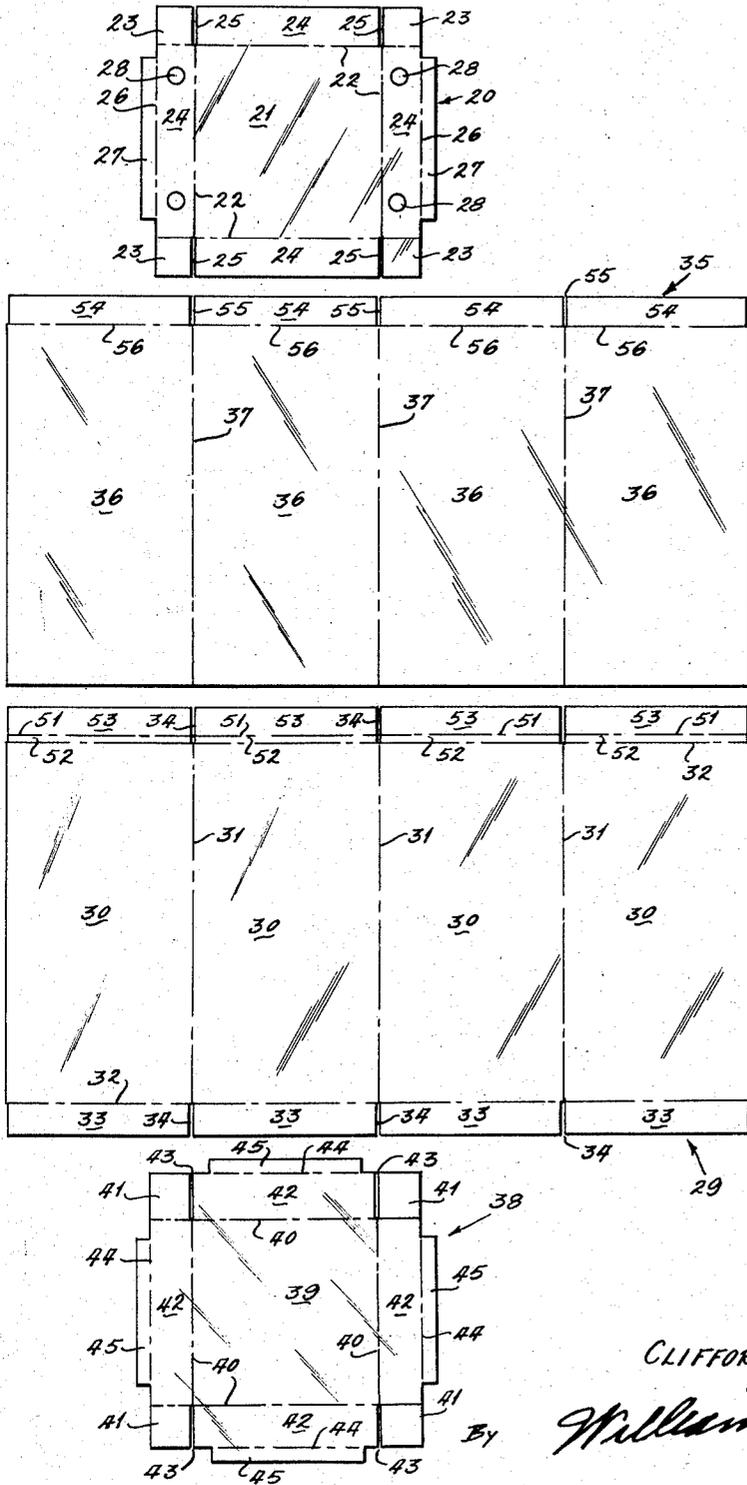


FIG. 1

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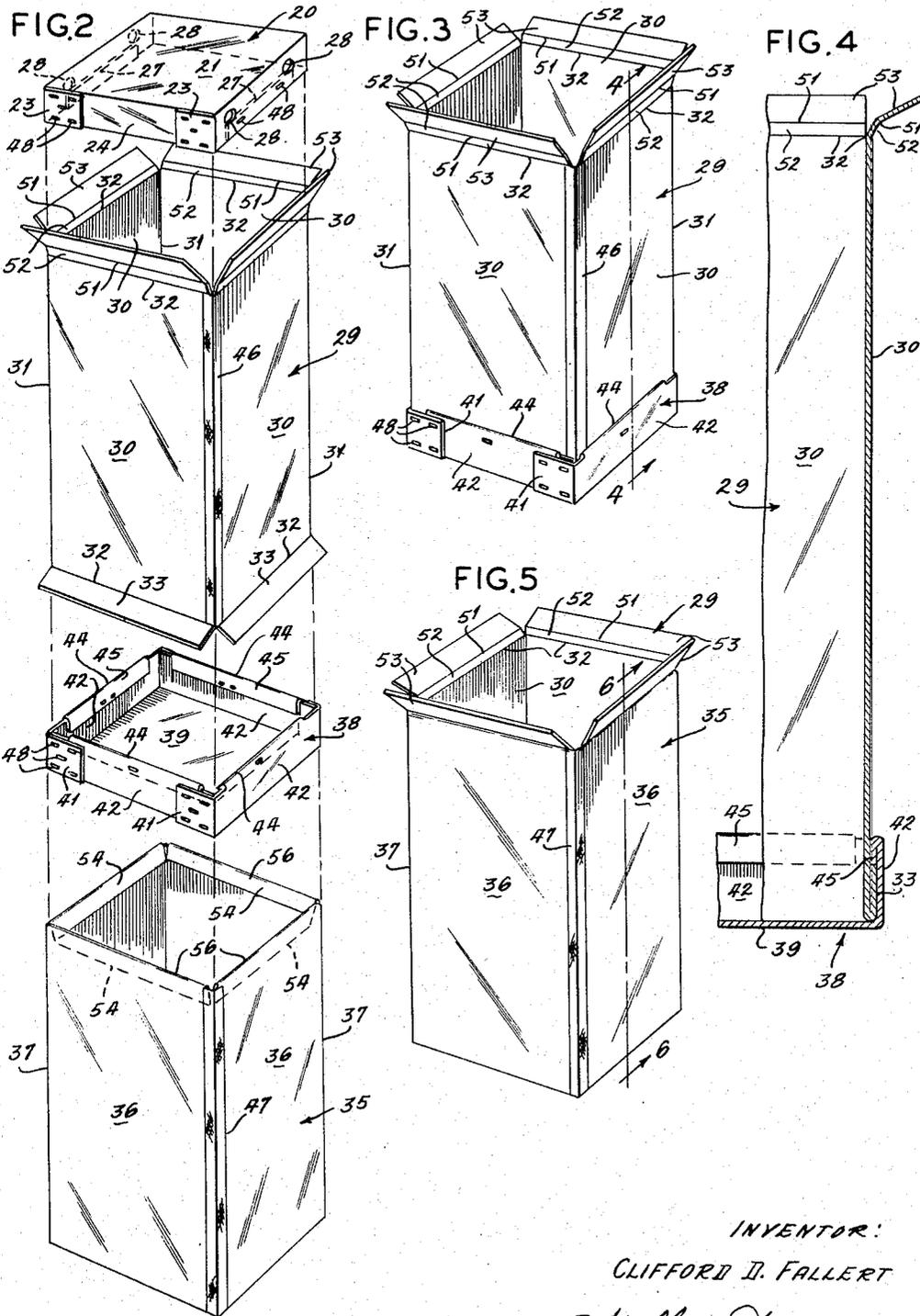
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HEAVY-DUTY CONTAINER FOR BULK MATERIAL

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3 Sheets-Sheet 2



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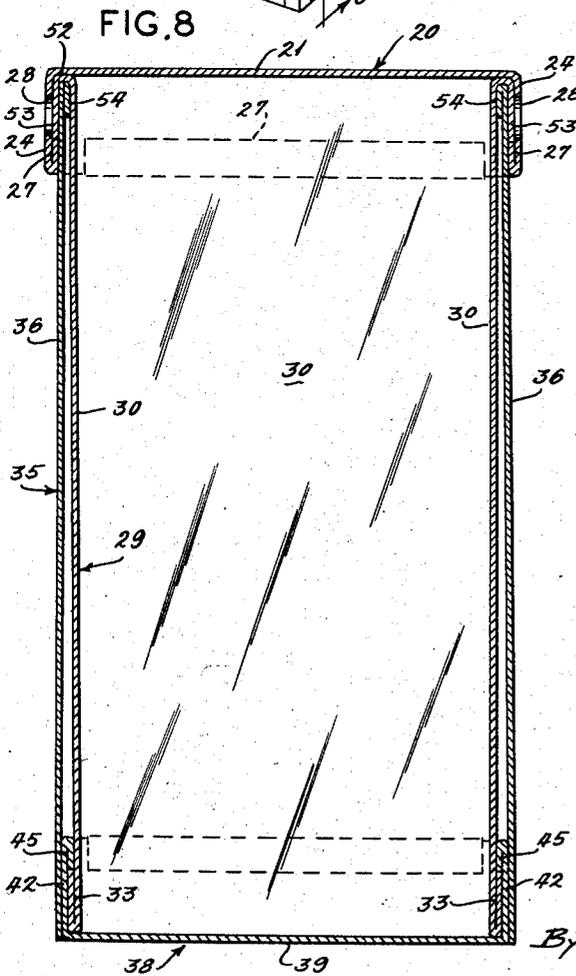
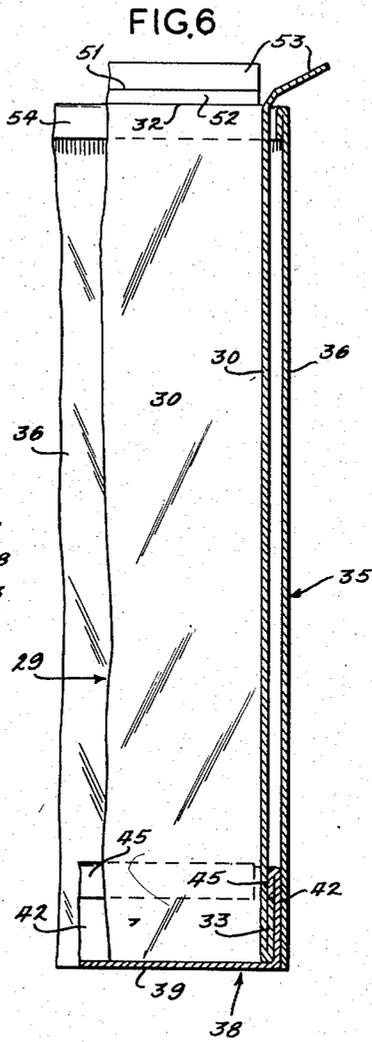
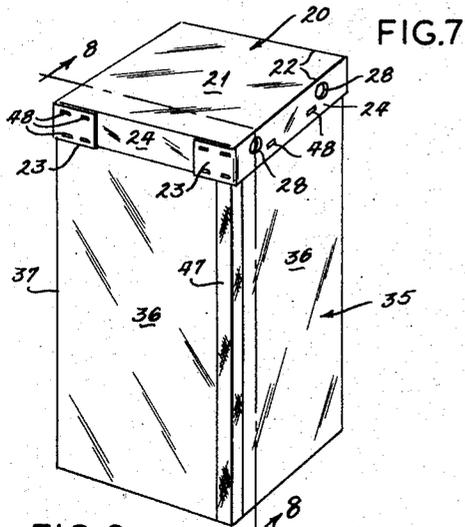
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HEAVY-DUTY CONTAINER FOR BULK MATERIAL

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3 Sheets-Sheet 3



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HEAVY-DUTY CONTAINER FOR BULK MATERIAL 5

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Application March 8, 1957, Serial No. 644,883 10

3 Claims. (Cl. 229—23)

This application is a continuation-in-part of copending application Serial No. 616,864, filed October 18, 1956.

This invention relates to heavy-duty containers for packing, shipping and storing bulk commodities which require positive protection for sifting and leakage and from contamination, including a top closure cap which may be securely locked in place, yet may readily be removed when desired. Containers employing this invention may be constructed of solid fibreboard, corrugated fibreboard or any other suitable material.

My invention is directed to containers for packaging quantities of bulk material up to approximately 500 pounds, that is, free flowing bulk commodities in granular, pellet or powder form. The containers often range in size up to approximately 24" x 24" x 24". Free flowing bulk commodities hereinbefore mentioned exert a substantial outward force on the walls and bottom structure of the container. Consequently, it is unexpected that containers constructed of relatively light, foldable material, such as fibreboard and the like can be used successfully for the purpose described.

Many of the bulk materials, for example, flour, chemicals in pellet and powder form, grain and the like, have heretofore been shipped in non-collapsible cylindrical fibreboard or metallic drums usually having a maximum capacity of from 50 to 300 pounds depending on the density of the commodity. Containers employing the subject invention may be preassembled and shipped partially knocked-down to the user which result in substantial economies. The containers may be, and usually are, palletized so that they may be stacked two, three or even four high. Furthermore, shipping and storing space is saved and stack ease facilitated as a result of their rectangular configuration. Other economies have resulted from their use.

More specifically, the container comprises a bottom tray, inner and outer telescoped sleeves, and a top closure cap. The bottom tray has a flat bottom panel with upstanding integral wall panels. Each wall panel has an integral upper marginal flap positioned intermediate its width and whose height is substantially one-third the height of the tray wall panel, the said marginal flaps being folded inwardly and downwardly and affixed to the inner face of the wall panel in any suitable manner. The wall panels are connected together by rectangular wall panel end extensions on one opposed pair of wall panels which are folded over the adjoining wall panels into flatwise relation and secured thereto in any suitable manner.

The inner and outer tubular sleeves are open-ended and are substantially the same height and are in telescoping relationship, one within the other. The inner sleeve thereof has integral lower flaps of substantially two-thirds the height of the bottom tray walls and integral upper flaps which have integrally connected therewith marginal flaps of substantially two-thirds the height of the top closure cap walls. The outer tubular sleeve has

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integral upper flaps of substantially one-half the height of the top closure cap walls.

The top closure cap has a flat top panel with downturned integral wall panels connected together by rectangular wall panel end extensions an opposed pair of wall panels, which are folded over the adjoining wall panel into flatwise relation and secured thereto in any suitable manner. The two opposed wall panels which have the rectangular end extensions also have integral lower marginal flaps positioned intermediate its width and whose height is substantially one-third the height of the top cap wall panels, the said marginal flaps being folded inwardly and upwardly and affixed to the inner face of the wall panel in any suitable manner. In each of the same opposed wall panels are two thumb access holes, positioned midway the height of the said wall panel and intermediate its width.

In the assembly of the container the integral bottom flaps of the inner liner or sleeve are folded outwardly and upwardly over the outer lower marginal portion of the inner liner. The inner sleeve is then telescoped within the bottom tray and locked permanently thereby by means of the upturned edge of the inner sleeve bottom flaps which engage the downturned edge of the bottom tray wall panel marginal flaps in abutting relation. The combined height of the lower integral flaps of the inner sleeve together with the height of the bottom tray wall marginal flaps being slightly less than the height of the bottom tray walls.

The outer sleeve is then telescoped over both the inner sleeve and the bottom tray. The upper integral flaps of the outer sleeve are folded inwardly and downwardly between the outer surface of the inner sleeve and the inner surface of the outer sleeve.

The inner sleeve integral upper flaps are then folded outwardly and the marginal flaps thereof folded downwardly over the upper margin of the outer sleeve. The top closure cap is then telescoped over the outwardly and downwardly folded upper inner sleeve marginal flaps and locked in place by the engagement of the free end edges of the opposite pair of upwardly turned top cap wall marginal flaps with the free end edges of a pair of the downturned inner sleeve marginal flaps, completing the assembly of the container. The combined height of the top cap wall marginal flaps together with the height of the inner sleeve integral upper flaps is slightly less than the height of the top cap walls. The hereinbefore mentioned thumb access holes permit the top closure cap to be removed by inwardly depressing the upper marginal inner sleeve flaps thereby disengaging its abutting relation with the edges of the top cap marginal flaps.

The above described inter engagement and cooperation of the structure of the top cap and bottom tray with the top and bottom flaps of the inner liner results in a container for bulk materials proof, against both sifting and contamination, of the contents.

An object of this invention is to provide an inexpensive sift-proof and contamination-proof, rigid rectangular container with a releasable locked cover for quantities of bulk material up to approximately 500 pounds which will provide positive protection from contamination of extraneous matter during transportation and storage.

A further object is to provide a container with upper and lower integral flaps on the inner liner, the bottom flaps being folded out and over the outer portion of the inner liner, and the upper integral flaps are folded out and over the outer liner or sleeve, the purpose being to prevent the packaged material from coming into contact with free end edges of paperboard and to provide means for locking the bottom tray and the top closure flap to the telescoped sleeves.

Still another object is to provide sift-proof containers

which may vary in size for example, up to approximately 24" x 24" x 30" or similar dimensions for shipping a wide variety of bulk commodities.

Another object is to provide a container, the outer exterior surface of the lower portion being entirely unobstructed, thereby providing positive protection from contamination by extraneous matter during transportation and storage.

These and other objects and advantages of the invention will be apparent to those skilled in the art upon a full and complete understanding of the construction and operation of the device as hereinafter set forth.

The invention consists in the parts, arrangements and combination of parts hereinafter described and claimed. The accompanying drawings form a part of this specification and like numerals and symbols therein, refer to like parts wherever they occur.

In the drawings:

Fig. 1 is a plan of the component parts of a container embodying the preferred form of the invention;

Fig. 2 is a perspective view of the component parts of the invention in erected condition preparatory to assembly;

Fig. 3 is a perspective view of the inner sleeve telescoped into the bottom tray;

Fig. 4 is a sectional view taken in the direction of the arrows 4—4 in Fig. 3;

Fig. 5 is a perspective view showing the inner liner with the bottom tray telescoped thereon inserted into the outer liner;

Fig. 6 is a sectional view taken in the direction of the arrows 6—6 in Fig. 5;

Fig. 7 is a perspective view of the completely assembled container; and

Fig. 8 is a sectional view of the completely assembled container taken along the line of the arrows 8—8 in Fig. 7.

The top closure cap 20, shown in Figure 1, is provided with a top panel 21 defined by score lines 22 which also defines the hinged connection of the rectangular connecting flaps 23 and the wall panels 24. Slots 25 also define in part the rectangular flaps 23 and the wall panels 24, score lines 26 in an opposed pair of wall panels 24 define the two wall panel marginal flaps 27. Four thumb access holes 28 are shown in an opposed pair of wall panels 24.

The inner liner or sleeve 29 shown in Fig. 1, is provided with four side panels 30 defined by three score lines 31 and two score lines 32 which also define the hinge connection for the lower integral flaps 33 and the upper integral flaps 52. Score lines 51 define the upper marginal flaps 53 which are integrally connected with the upper flaps 52 by the score lines 51. Side slots 34 define the side margins of the lower flaps 33 and the upper flaps 52 and upper marginal flaps 53.

The outer liner or sleeve 35, as shown in Fig. 1, is provided with four side panels 36 defined by three score lines 37 and score line 36 which also define the hinge connection of the upper marginal flaps 54. Side slots 55 define the side margins of the upper flaps 54.

The bottom tray 38 as shown in Fig. 1 is provided with a bottom panel 39 defined by score lines 40 which also define the hinge connection of the rectangular connecting flaps 41 and the wall panels 42. Slots 43 also define in part the rectangular flaps 41 and the wall panels 42. Score lines 44 and the wall panels 42 define the four wall panel marginal flaps 45.

The inner liner or sleeve 29 may be erected in any desired manner, however, a preferred method of erecting the blank is to affix a tape 46 to the outside of the two free edges of the side panels 30, as shown in Fig. 2.

A preferred method of erecting the outer liner or sleeve blank 35 is to affix a tape 47 to the outside of the two free edges of the side panels 36 as shown in Fig. 2.

A preferred method of erecting the top closure cap 20

is to affix staples 48 to the rectangular flaps 23 and wall panels 24 which are in juxtaposed relation. The wall panel marginal flaps 27 are folded downwardly and inwardly and affixed by staples 48 as shown in Fig. 2.

The bottom tray 38 may be erected in any desired manner, however, a preferred method as shown in Fig. 2 is identical to that of erecting the top closure cap 20.

The lower integral inner sleeve flaps 33 are folded outwardly and upwardly and the entire inner sleeve 29 is then telescoped into the bottom tray 38 as shown in Fig. 3. The upper marginal flaps 54 of the outer liner or sleeve 35 are folded inwardly and downwardly and the inner sleeve 29 together with the bottom tray 38, which have been previously telescoped together, are then telescoped into the outer liner 35 as shown in Fig. 5. The upper integral flaps 52 of the inner liner or sleeve 29 are folded outwardly about the score line 32 and the upper marginal flaps 53 of the inner liner or sleeve 29 are folded downwardly about the score line 51 over the upper exterior portion of the outer sleeve 35, and the top closure cap 20 telescoped over the inner sleeve 29, all as shown by Fig. 7.

As shown in Fig. 8 the bottom tray is effectively locked to the container by means of the downturned edge of the bottom tray wall marginal flaps 45 being in abutting relation with the upturned edge of the inner sleeve bottom flaps 33. The top closure cap 20 is likewise locked in place by means of the edge of the top cap wall panel marginal flaps 27 being in abutting relation with the edges of the inner sleeve upper marginal flaps 53.

Also as shown in Fig. 8 the bottom tray 20 is permanently locked to the inner sleeve by the abutting relation of the edges of the bottom tray wall panel marginal flaps 45 with the inner sleeve bottom flap 33. However, the top closure cap 20 while locked in a manner similar to that of the bottom tray, may be released, by means of the thumb access holes 28, which enable the inner sleeve upper marginal flap 53 to be depressed while the wall panel marginal flaps 27 of the top closure cap 20 are pulled out of engagement with the upper inner sleeve marginal flap 53 thereby permitting the top closure cap 20 to be removed.

The above described invention which provides an exterior surface of the lower portions of the container free of any upturned edges of the paperboard provides a sift-proof container free from exterior contamination. Furthermore all raw edges of paperboard are completely sealed from the contents of the container, thereby insuring the chemicals, comestibles, and other commodities packaged therein, from possible deleterious paperboard chemical and paperboard particle contamination.

It is to be understood that the embodiments herein described are illustrative and not restrictive, it is also to be understood that the invention may be susceptible of embodiment in other modified forms, and that all such modifications which are similar or equivalent hereto come equally within the scope of the claims next appearing.

I claim:

1. A heavy-duty, rigid, rectangular container for bulk materials comprising a top cap having a top panel with downturned integral walls, a pair of opposed walls having integral marginal flaps folded inwardly against the inner face of the walls, a bottom tray having a bottom panel with upturned integral walls, each wall having integral marginal flaps folded inwardly against the inner face of the wall, inner and outer open ended tubular sleeves of substantially same height, the inner sleeve having lower integral flaps folded outwardly and upwardly with the upturned edges thereof in abutting and locking engagement with the downturned edges of the bottom tray wall marginal flaps, the outer sleeve being telescoped over both the inner sleeve and bottom tray with its lower marginal interior portion in frictionally engaging relationship with the exterior portion of the

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bottom tray walls, and the lower marginal edge portions of the outer sleeve being in substantially coplanar relation with the bottom panel of the bottom tray, the outer sleeve having upper integral flaps folded inwardly and downwardly between the inner and outer sleeves, the inner sleeve having four upper integral flaps with four marginal flaps integrally connected thereto, the flaps being folded outward into horizontal relationship and resting on the upper edge of the outer sleeve, with their integrally connected marginal flaps folded downwardly with an opposed pair of their downturned edges thereof in abutting and locking engagement with the upturned edges of an opposed pair of top cap wall marginal flaps.

2. The container set forth and claimed in claim 1 wherein the top cap walls having the opposed pair of wall marginal flaps each have two thumb access holes intermediate its width and midway its height.

3. In a heavy duty rectangular container for packaging bulk material free from contact with raw edges of paperboard, the container having inner and outer telescoped sleeves of substantially equal height, the inner sleeve having upper integral flaps folded over the upper margin of the outer sleeves downwardly into locking engagement with upturned locking flaps on the inner faces of the walls of a top closure, means for providing a bottom closure proof against ingress of contaminating materials under all conditions of use, said means comprising a tray having a bottom panel with integral right angu-

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larly upturned walls, each wall having a marginal flap folded inwardly and downwardly flatwise against the inner face of the wall, flaps on each bottom edge of the inner sleeve folded upwardly against the outer face of the sleeve, the combined width of the downturned flaps on the tray walls and the upturned flaps of the sleeve being slightly less than the height of the tray walls whereby the free end edge of the sleeve flaps are in abutting relation with the downturned marginal flaps of the tray, permanently locking the tray to the inner sleeve, the outer sleeve being telescoped over the inner sleeve and attached bottom tray with the lower margins thereof in frictional engagement with the outer faces of the walls of the tray and with its end edges in coplanar relation with the outer face of the bottom panel of the tray, thereby effectually forming a closure proof against ingress of contaminating material to the interior of the container and egress of the contents therefrom.

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