Oct. 30, 1956 W. C. FERGUSON ET AL 2,768,778

LOCKING DEVICE FOR CONTAINERS

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FIG. 1

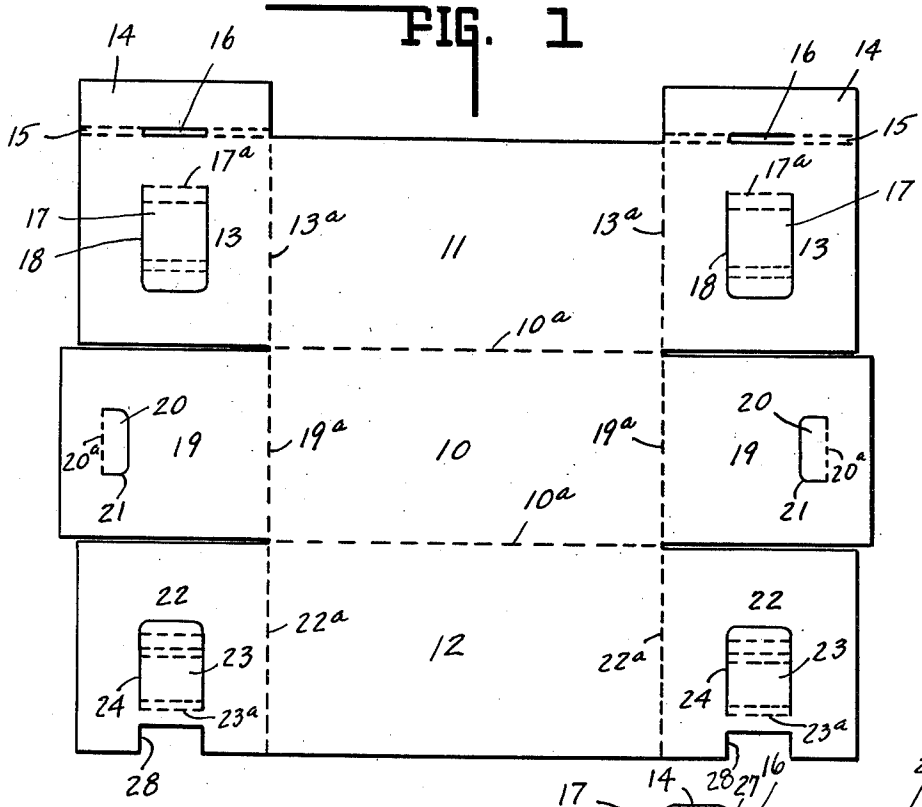


FIG. 2

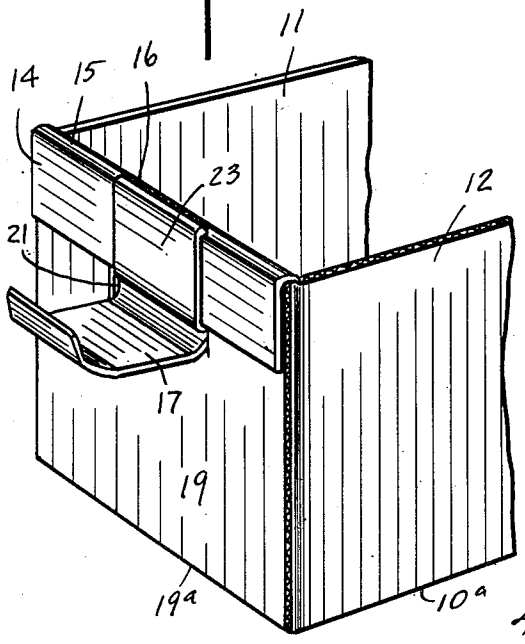
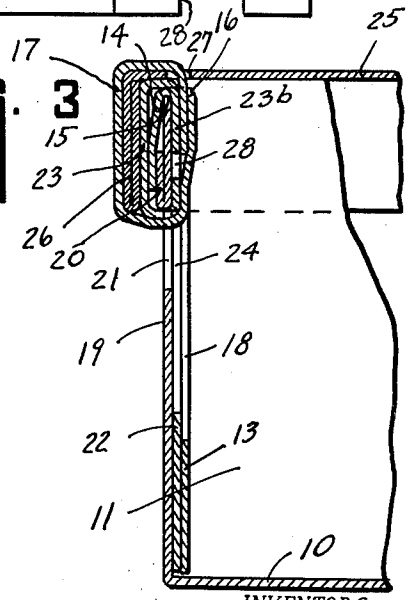


FIG. 3



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FIG. 4

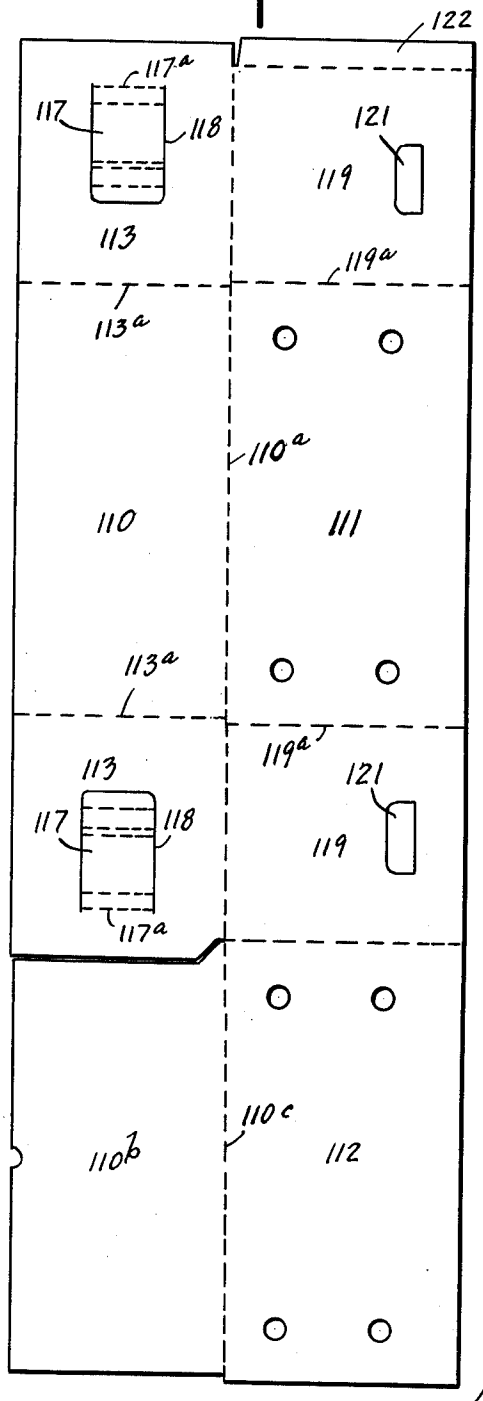


FIG. 5

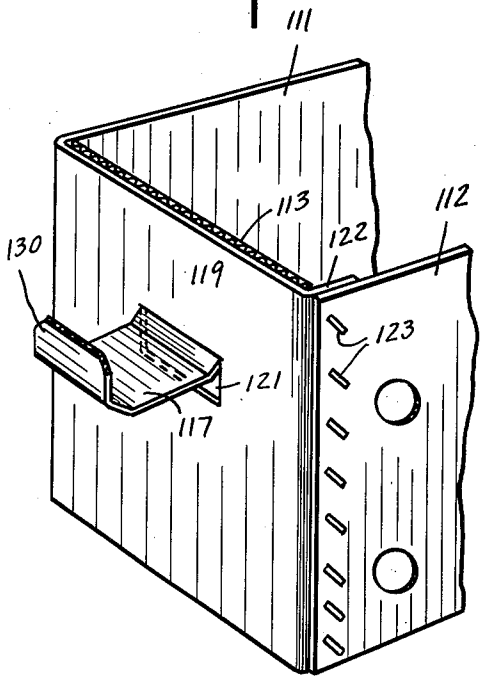
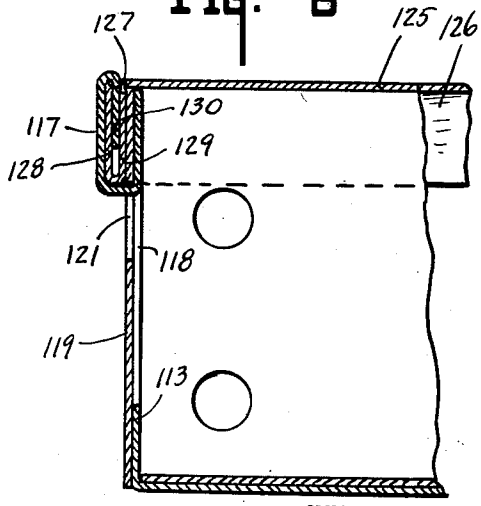


FIG. 6



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United States Patent Office 2,768,778
Patented Oct. 30, 1956

2,768,778

LOCKING DEVICE FOR CONTAINERS

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Application January 5, 1954, Serial No. 402,300

9 Claims. (Cl. 229—45)

This invention relates to a fibreboard container, particularly of the corrugated board type, and more specifically to the locking device for securing the walls of the container in erected condition and locking a cover lid thereon.

One feature of the invention resides in the locking device for the erected container such as to eliminate the necessity of utilizing stapling or taping, particularly those containers having hand holes at each end for facilitating the lifting thereof as in egg cases, cases for bottled or canned goods and the like.

The locking of the walls of the container without resort to taping or stapling is accomplished by cutting a locking tongue from the inner end wall of the container with its upper end hinged thereto, passing it through hand hole openings in intermediate and outer end walls, to be folded upwardly therefrom and inserted into locking engagement with the slotted ledge formed in association with the flap extending downwardly from the inner wall to embrace both the intermediate and outer end walls. By reason of such arrangement the inner and intermediate walls which are hinged to the respective side walls, are interlocked with an outer end wall hinged to the bottom of the container, thus providing an end lock for the container, all in the manner hereinafter more particularly described.

Another feature of the invention resides in lengthening the locking tongue, as above described, to permit it to extend over the end walls of the container and interlock with a cover lid for securing the cover lid thereto, wherein such tongue becomes a lid lock, and a second tongue nested therein is cut out from the intermediate end wall, extended through the hand hole opening with the lid locking tongue, and nested therein. It is inserted to nest downwardly in the slot of the lid in the manner above described, whereby the intermediate and outer end walls will be locked together and the inner wall locked therewith through the medium of the lid lock.

By reason of the above arrangement, such hand hole cut out tongues in the end walls of the container are utilized for providing an end lock, a lid lock, or both an end lock and a lid lock.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a plan view of a container having the dual locking tongues, one to provide an end lock and the other to provide a lid lock, and showing the blank before erection.

Fig. 2 is a perspective view of one end of the container erected from the blank of Fig. 1, showing an end lock in locking position with the lid lock extended.

Fig. 3 is a central vertical section through an end wall of the container and cover lid applied thereto in erected position with both the end lock and the lid lock in their respective locking positions.

Fig. 4 is a plan view showing a modified form of container comprising a blank before erection by stapling, and provided with the lid lock.

Fig. 5 is a perspective view of one end of the erected container, as shown in Fig. 4, with the lid lock extended.

Fig. 6 is a central vertical section through one end of the erected container with the cover lid mounted thereon and the lid lock in lid locking position.

In the drawings, referring to Figs. 1, 2 and 3, there is shown a container, preferably of fibreboard or corrugated paperboard, including a bottom **10**, side walls **11** and **12**. The blank is scored along the lines **10***a* for hinging the side walls upwardly from the bottom. Hinged to each end of the side wall **11** there is an inner end wall **13** scored for hinging relative to the side wall **11** at **13***a*. Each of the inner end walls **13** is formed with a flap **14** scored to fold over and downwardly to provide an upper ledge **15**, said ledge being provided with a central elongated slot **16**. Substantially centrally of each inner end wall **13** a lid lock tongue **17** is cut therefrom to provide a hand hole **18** therein, and which is hinged at its upper end at the scored line indicated at **17***a*.

Secured to each end of the bottom **10** there is an outer end wall **19** hinged thereto by scoring along the line indicated at **19***a*. Each of said outer end walls is provided with a cut out flap **20** hinged at **20***a* for providing a hand hole opening **21** when hinged upwardly relative to the bottom. Hinged to opposite ends of the side wall **12** there are intermediate end walls **22** connected by the score line **22***a*. Each of said intermediate end walls **22** has a cut out end lock tongue **23** hinged at the score line **23***a* to leave a hand hole opening **24**.

Upon the container being erected, as shown in Fig. 2, and locked in erected position by the end lock tongue **23**, a cover lid **25** may be applied over the upstanding walls thereof. Said cover lid includes a top and reversely folded side walls **26**. In erecting the container from the blank shown in Fig. 1, and as illustrated in Fig. 2, the side walls are hinged upwardly from the bottom and the end walls hinged inwardly so as to nest against each other, as shown in Fig. 3. The flaps **14** are then turned downwardly to provide the slotted ledge **15** and to embrace the oute rand intermediate end walls **19** and **22**. In this position the hand hole openings **18**, **21** and **24** are aligned, whereupon the end lock tongue **23** extending from the intermediate end wall is threaded through the hand hole **21** of the outer end wall, turned upwardly to embrace the flap **14** with its free end nested downwardly into the slot **16** of the ledge **15**. In this operation the flap **20** may be folded up to nest under the flap **14** and the intermediate end wall **22** may have its upper edge notched at **28** to receive the downturned locking end of the end lock tongue **23**, as indicated at **23***b*.

In the above manner the triple end walls, each connected with one of the side walls and the bottom of the container respectively, are locked together so that the entire container is securely held in erected position by the end locked tongues without any requirement of stapling or taping. Through the medium of the end lock device, the container may be readily unlocked for shipping or storing as a flat blank, shown in Fig. 1. Thus, without the necessity of removing or applying staples or taping, the container may be erected in assembled condition or disassembled readily and repeatedly.

If it is not desirable to utilize the lid lock, only one of the tongues **17**, **23** need be employed, it being optional as to whether the lid lock tongue **17** is eliminated, leaving merely a hand hole in the inner end wall, or the tongue **23** eliminated from the intermediate wall, leaving merely a hand hole therein through which the tongue **17** may extend to serve as an end lock tongue rather than a lid lock tongue.

However, when it is desired to utilize both tongues, one as an end lock for the container and the other as a lid lock for the cover lid **25**, the container is locked in erected position as above described and shown in Fig. 2. Upon application of the cover lid **25** the lid lock tongue **17** may then be turned upwardly about the end wall **26** of the cover lid to extend over the end thereof and be nested downwardly through the slot **27** for locking the cover lid securely to the container. In this instance it may be desirable to provide a more secure locking of the cover lid if the free end portion of the lid lock tongue is also extended through the slot **16** to frictionally nest between the tucked-in end portion of the tongue **23** and the adjacent portion of the inner end wall **13**, as shown in Fig. 3.

A further alternative is shown in the modified forms of Figs. 4, 5 and 6, wherein it may be desirable to employ only a lid lock and erect and secure the container by taping or stapling. However, in this arrangement the lid lock tongue is formed and arranged precisely as above described with respect to the lid lock tongue **17**, for securing the cover lid in the manner shown in Fig. 3.

In Fig. 4 there is shown an outer bottom panel **110** hingedly connected with a side wall **111** and **110***a*. An inner bottom panel **110***b* is hinged to the side wall **112** by the score line **110***c*. Hinged to opposite ends of the bottom panel **110** there is a pair of inner end walls **113** hinged, respectively, to the bottom panel at **113***a*. Each of the end walls **113** is provided with a lid lock tongue **117** hinged at one end along the score line **117***a* to leave a hand hole **118**.

Hinged to opposite ends of the side wall **111** there are outer end walls **119** secured along the scored line **119***a*. Each of said outer end walls is provided with a hand hole **121** and one of said outer end walls is provided with a securing flap **122** for receiving staples or other securing means, as indicated at **123**.

The container thus erected is adapted to receive a cover lid **125** having side walls **126**. The end walls are preferably formed by inwardly folded outer portions **128** and inner portions **129**, with the inner portions **129** spaced inwardly to receive the free end portion **130** of the lid lock tongue **117** when extended downwardly therein through the slot **127** formed adjacent the ends of the lid in alignment with said spacing.

In this modified structure there are provided two bottom panels instead of the single bottom panel of Figs. 1 to 3. However, it is formed with only two end panels, as distinguished from three end panels, as shown in the first modification. By reason of this structure stapling, taping or similar securing means is required for holding the container in erected form. However, there is provided the same lid lock tongue extending from the cut out hand hole of the inner end wall through the hand hole of the outer end wall to be inserted in the slot provided in the cover lid in precisely the same manner as described with respect to the first modification of Figs. 1 to 3.

From the foregoing, it will be observed that the container is provided with one or more locking devices in the form of tongues cut from the hand holes of the end walls serving to lock the bottom and walls of the container in erected position without stapling, taping or the like, as in Figs. 1 to 3; similarly serve to lock a cover lid over the container, as shown in Figs. 4 to 6; or through utilization of two such devices both lock the bottom and side walls of the container in the erected position and also lock a cover lid thereto, as also shown in Figs. 1 to 3, inclusive.

The above-described locking devices are labor saving in respect to erecting and assembling both the container and the lid, or disassembling them and reducing the container to a flat blank for shipping or storing after use. Through the medium of the lid lock device the cover lid may be firmly secured, such as to eliminate tying or otherwise securing the lid for shipment, and having such strength as to enable the container to be lifted by the lid even to include superposed containers and thereby facilitate loading and unloading, as well as the use of fork trucks or the like. By providing such locking means from the usual cut out hand holes of the end walls a substantial saving of board is effected as well as the saving of other securing devices.

The invention claimed is:

1. A container having a bottom panel, a pair of side walls hinged thereto and triple end walls hinged to opposite ends of said bottom panel and side walls respectively to provide at each end of said container overlapping inner and outer end walls, each having a registering hand hole, a downturned flap hinged from the upper edge of the innermost end wall to extend over and downwardly into embracing relation with the outer end wall and forming an upper ledge having an elongated slot therein, and an end wall lock tongue cut from the hand hole of an inner end wall extended through the hand hole opening of the outer wall and upwardly therefrom to embrace said flap with its free end inserted in the said slot for interlocking engagement therewith, to thereby secure said end walls in overlapping relation with said side walls in erected position.

2. A container having a bottom panel, a pair of side walls hinged thereto and triple end walls hinged to opposite ends of said bottom panel and side walls respectively to provide at each end of said container overlapping inner and outer end walls, said end walls having registering cut out hand holes therein, an upturned flap cut from the hand hole of the outer end wall and bent upwardly therefrom, a downturned flap hinged from the upper edge of the inner end wall to extend over and downwardly into embracing relation with the outer end wall and its upturned flap forming an upper ledge having an elongated slot therein, a notch formed in the intermediate end wall open at the top in alignment with said slot, and an end lock tongue cut out from the hand hole of an inner end wall extended through the hand hole opening of the outer wall and hinged upwardly therefrom to overlie and embrace the said downturned flap of the inner wall, said tongue having a scored free end extending downwardly into said slot and notch for interlocking therewith to secure said end walls in overlapping relation and maintaining their associated side walls in erected position.

3. A container including inner and outer walls, each of said walls having registering hand hole openings therein, the inner wall having a flap hinged from the top edge thereof to extend downwardly over and in embracing relation with the upper portion of the outer wall above its hand hole opening, an elongated slot extending along the hinged portion of said flap in alignment and coextensive with said hand hole openings, and a lock tongue cut out of the hand hole opening of the inner wall hinged from the upper portion thereof to extend outwardly and through the hand hole opening of the outer wall, said tongue extending upwardly in embracing relation with said flap and the upper portion of the outer wall with its free end hinged downwardly to extend through said slot to interlock therewith and secure said walls in assembled relation.

4. A container having a bottom panel, a pair of side walls hinged thereto and triple end walls hinged to opposite ends of said bottom panel and said walls respectively to provide at each end of said container overlapping inner and outer end walls, each having a registering hand hole, a superimposed cover lid mounted over said walls, a downturned flap hinged from the upper edge of the innermost end wall to extend over and downwardly into embracing relation with the outer end wall and forming an upper ledge having an elongated slot therein, an end wall lock tongue cut from the hand hole of the intermediate one of said end walls extending through the hand hole opening of the outer wall and upwardly therefrom to embrace said flap with its free end inserted in the said slot for interlocking engagement therewith, to thereby secure said

end walls in overlapping relation with said side walls in erected position, and a second lid lock tongue cut from the hand hole of the innermost one of said inner end walls extending through the hand holes of the intermediate and outer end walls adapted to be extended upwardly into tongue and slot locking engagement with said superimposed cover lit.

5. A closed container comprising a bottom panel, a pair of side walls hinged thereto, triple end walls hinged to opposite ends of said bottom panel and side walls respectively and a removable superimposed cover lid therefor, the said triple end walls at each end of said container being positioned to overlap each other, and each having a registering hand hole therein, a down turned flap hinged from the upper edge of the innermost end wall to extend over and downwardly into embracing relation with the outermost end wall and forming an upper ledge having an elongated slot therein coextensive and in alignment with said hand holes, an end wall lock tongue cut from the hand hole of the intermediate end wall extending through the hand hole opening of the outer wall and upwardly therefrom to embrace said flap with its free end inserted in the said slot for interlocking engagement therewith and thereby secure said end walls in overlapping relation with said side walls in erected position, a downwardly extending skirt on said cover lid surrounding and embracing said downturned flap and end wall tongue lock and having slots in the top thereof in alignment and coextensive with said hand hole openings and substantially in the planes of the inner end walls, and a tongue cut from the hand hole of the innermost end wall hinged therefrom to extend through the other said hand hole for folding upwardly in embracing relation about the skirt of said cover lid with its free end extending downwardly through the slot therein between the inner end walls for locking the cover lid thereto.

6. A closed container comprising a bottom panel, a pair of side walls hinged thereto, triple end walls hinged to opposite ends of said bottom panel and side walls respectively, and a cover lid closure having a depending skirt surrounding said walls having an elongated slot in the top thereof substantially in the plane of said inner end walls, the said end walls at each end of said container extending in overlapping relation to include inner, intermediate and outer walls, each having registering cut out hand holes therein, an upturned flap cut from the hand hole of the outer end wall and bent upwardly therefrom, a downwardly turned flap hinged from the upper edge of the inner end wall to extend over and downwardly into embracing relation with the outer end wall and its upturned flap and forming an upper ledge having an elongated slot therein, a notch formed in the intermediate end wall open at the top in alignment with said slot, an end lock tongue cut out from the hand hole of the intermediate end wall extending through the hand hole opening of the outer wall and hinged upwardly therefrom to overlie and embrace the said downturned flap of the inner wall, said tongue having a scored end extending downwardly into said slot and notch for interlocking therewith to secure said end walls in overlapping relation and maintain their associated side walls in erected position, and a lid lock tongue cut out from the hand hole of the innermost wall extending through the hand hole openings of the adjacent walls and hinged upwardly to overlie and embrace the adjacent skirt portion of said lid, said tongue

having a scored free end extending downwardly into the slot provided in said lid and between the upper portions of said innermost and intermediate end walls for interlocking therewith to secure said cover lid over said walls.

7. A closed container having a bottom panel, a pair of side walls, inner and outer end walls and a cover lid having a dependent skirt embracing the upper portions of said walls, the end walls at each end of said container lying in overlapping relation and each provided with hand hole openings, said cover lid being provided with a slot adjacent the skirt portion in alignment and coextensive with said hand hole openings, and a lid lock tongue cut out from the hand hole opening of the inner end wall extending through the said opening in the outer wall hinged to extend upwardly over and in embracing relation with the adjacent portion of said skirt with its free end hinged to extend downwardly through said slot in interlocking relation therewith for securing said inner and outer end walls together and said cover lid thereover.

8. A closed container including a pair of opposed single upstanding walls and an opposed pair of double upstanding walls, said double upstanding walls having registering hand hole openings therein, a cover lid for seating over said walls having depending skirts, opposed skirts embracing said double walls including an upturned inner skirt portion spaced from the outer skirt portion, said cover lid having a slot extending in alignment and coextensive with said hand hole openings and opening into a space between the outer and inner skirt portions, and a lid lock tongue cut from the hand hole opening of each inner wall to extend through the hand hole opening in the outer wall, said tongue being hinged to extend upwardly in embracing relation with the adjacent skirt portion of said cover lid with its free end scored to hinge downwardly and extend into said slot to nest between the inner and outer portions of said double skirt portion for interlocking therewith to removably secure said wall portions together and said cover lid thereover.

9. A closed container including a pair of opposed inner and outer walls, each having registering hand hole openings therein, a cover lid extending over the upper edge of said walls having a downwardly extending skirt portion, said skirt portion overlying and embracing said inner and outer walls having an inwardly turned and upwardly extending coextensive flap to provide an inner skirt pocket open at the top, said cover lid having an elongated slot registering with said pocket and in alignment and coextensive with said hand hole openings, and a lock tongue cut out of the inner wall hand hole opening and extending through the hand hole opening of the outer wall to embrace the adjacent skirt portion of said lid, the free end of said tongue being scored to hinge downwardly to extend through said slot into said pocket for removably locking said inner and outer walls and said cover lid together.

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