

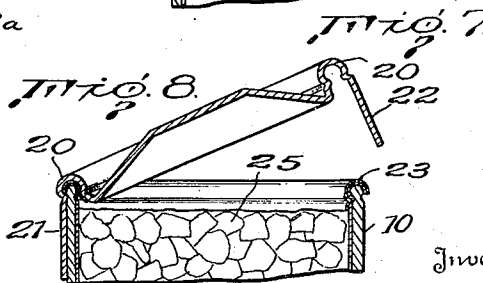
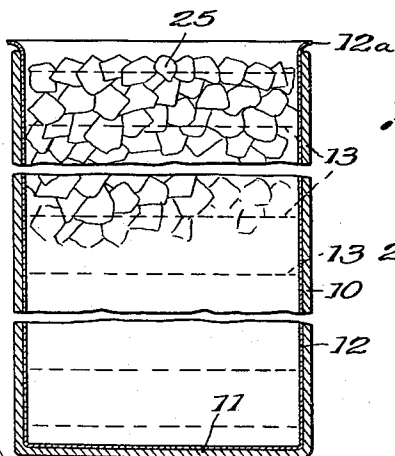
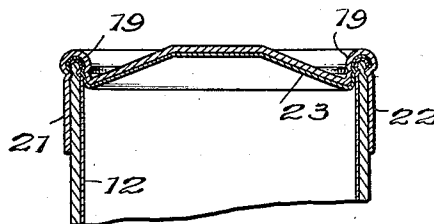
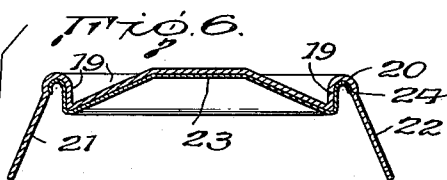
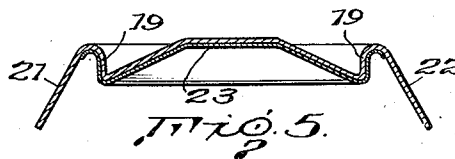
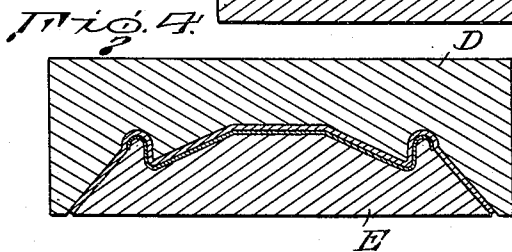
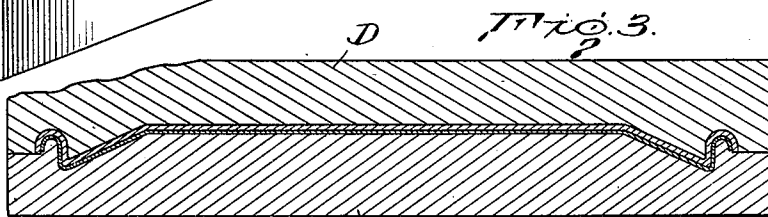
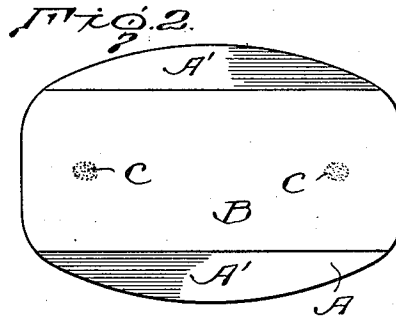
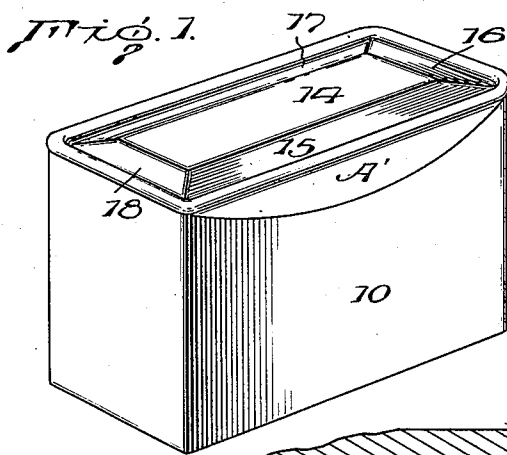
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E. HILDEBRANDT

2,290,749

CONTAINER

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2,290,749

CONTAINER

Edward Hildebrandt, Seattle, Wash.

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1 Claim. (Cl. 229—5.5)

My invention relates to improvements in containers and has to do, more particularly, with the fabrication of air-tight shipping and storage receptacles for the packaging of foodstuffs, pharmaceutical preparations and the like which are subject to deterioration under exposure to the atmosphere.

My invention is concerned with the attainment of two purposes which, hitherto, have been relatively incompatible. The first is substantial hermeticity of sealing in a paper or paper composition box. The other is compactness in lot shipment and storage which is achievable only with containers the sides of which are plane to permit full facial contact of one container with its neighbors in a carton and avoid vacant spaces therebetween. In paper boxes of rectangular or other polygonal cross-section, it has been extremely difficult to provide a closure which may be effectively reused during intermittent consumption of the product packaged in the box. It is to the inexpensive accomplishment of this end that my invention is directed.

It is, accordingly, a primary object of my invention to provide a simple paper box construction of polygonal form having an initially substantially hermetically sealed closure capable of repeated reuse to exclude air and atmospheric moisture.

It is an object of my invention to provide a paper box construction of polygonal cross-section which includes an initially sealed but repeatedly reusable closure element which is hinged to the box proper and insured against inadvertent loss.

It is an object of my invention to provide a rectangular or other polygonal closure construction for paper boxes which is free from seams and tendency to burst or split under severe use and handling.

It is an object of my invention to provide a paper box construction having a friction lid or closure which is hinged to a side of the box proper and is of such design as to permit facile reuse.

It is an object of my invention to provide a rectangular paper box closure which may be manufactured without the notching operations heretofore required.

It is an object of my invention to provide a sturdy rectangular paper box friction closure which can be fabricated from flat sheet blanks by a single automatic pressing operation.

Lastly, it is an object of my invention to provide a repeatedly reusable paper box closure which is inexpensive, strong and attractive.

Further objects, and objects relating to details

and economies of construction and use will more definitely appear to those skilled in the art upon familiarization with the detailed description to follow. In one instance, I accomplish the objects of my invention by the means and methods set forth in the following specification. My invention is clearly defined in the appended claim. One structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawing forming a part of this specification, in which—

Figure 1 is a perspective view of a paper box provided with a closure constituting a preferred embodiment of my invention;

Fig. 2 is a bottom plan view of the flat paper-board blank from which the closure illustrated in Fig. 1 may be formed by a single embossing operation, said blank having, lightly secured thereto as with several small spots of adhesive, a thin membranous liner which is capable of embossment into complementarism with the paperboard blank proper;

Fig. 3 is a longitudinal sectional view of said blank disposed between the dies by which it is embossed;

Fig. 4 is a similar but transverse sectional view of the same dies and embossed closure blank;

Fig. 5 is a transverse sectional view of the embossed closure blank after removal from the forming dies;

Fig. 6 is a transverse sectional view of the same closure and the lined container upon which it is about to be installed, the supporting instrumentalities of the automatic assembling machine being unillustrated;

Fig. 7 is a transverse sectional view of the closure and the adjacent end of the container body with which it has been assembled; and

Fig. 8 is a view of the same parts as shown in Fig. 7, the closure proper having been lifted to hinge along one top edge of the container body, and the closure liner having been cut out and removed.

The same reference numerals refer to like parts throughout the several views.

Referring, now, to the specific structural features of the embodiment illustrated in the accompanying drawing, there is shown a paper-board container body 10 of rectangular configuration provided with any suitably associated bottom 11 and having, complementarily disposed therein, a lining member 12 of any suitable membranous material impervious to air and moisture. The lining 12 may be seamless or seamed in construction and is preferably secured to the

container body 10, 11 by spacedly distributed adhesive material 13. Preferably, the upper edge 12a of the liner extends slightly beyond the top edge of the paperboard body, as shown in Fig. 6.

My invention applies particularly to the top closure and to its mode of assembly with the described container body. Preferably, and as shown in Fig. 2, the closure is formed from a single flat blank of paperboard stock A provided with a thin liner portion B superficially secured thereto by small rupturable spots of adhesive C. The stock from which the closure portion A is cut may, as shown, be of lesser thickness than that of the container body 10. The liner portion B is substantially rectangular and is coextensive with the portion A except for the lateral arcuate wing portions A¹ which are inclined.

The closure is formed from the blank A, B, by embossment between a complementary pair of dies D, E, actuated by suitable pressure-applying means (not shown). These dies, in one operation, give to the blank A, B, the form illustrated in Figs. 3 and 4 wherein the closure consists of a central, elevated rectangular panel 14, marginal panels 15, 16, 17 and 18 downwardly inclined from the elevated central panel, a seamless upstanding annular flange 19 of rectangular form snugly and frictionally receivable within the lined container body 10 adjacent its top edge, a laterally-outwardly and downwardly curled annular flange 20 adapted to receive the end edge of the container body covered by the portion 12a of its liner, and closure fastening portions 21 and 22 constituting downward extensions of the flange 20 along its two longer straight edges. The entire inner surface of the closure, with the exception of the portions 21 and 22, is covered by the complementary liner 23 formed from the blank portion B shown in Fig. 2.

Fig. 5 discloses the closure as it is produced by the embossing dies. Fig. 6 discloses the same closure provided, in the channel of its flange 20, with a small quantity of adhesive 24 for permanently securing the liner portions 23 and 12 together in hermetically sealed relation. The adhesive material 24 is preferably distributed upon the channel surface 20 in the form of a thin annular coating generally coextensive therewith, as shown, and a similar adhesive coating may be applied to the surface of the liner portion 12a which becomes contiguous thereto during assembly. Preferably, these adhesive coatings are thermo-setting and flow into community upon application of sealing heat and pressure to these container parts. Actual securement of the closure proper to the container proper is accomplished, as shown in Fig. 7, by constricting the flange 20 upon the top portion of the body 10 and by securely gluing the wings 21 and 22 to the adjacent broad sides of the body 12. Any suitable adhesive may be employed for this purpose, either thermosetting or otherwise, but, for a purpose later to be explained, it is desirable that at least one wing (22 here shown) be separable from the container body 10 by interposition of a knife or other blade.

Having thus described the structure of my container, its operation and utility should be readily apparent to those familiar with containers of the prior art and the disadvantages inherent thereto. As has been set forth, the salient purpose of my invention is to provide an entirely non-metallic polygonal shipping container which is initially air- and moisture-tight yet which may be continued in use, after having

been opened, to afford substantial protection for delicate contents while disposed on the consumer's shelf and pending complete consumption. This capability of my container can be readily appreciated from the disclosure in Fig. 7 wherein the hermeticity of packaging afforded by the liners 12 and 23 sealed by the adhesive 24 is clearly depicted; and in Fig. 8 wherein the container has been opened and the closure is still frictionally snugly reassociable with the container body to afford satisfactory reclosure thereof.

In connection with the disclosure in Fig. 8 it should be pointed out that the elevation of the closure comprised by portions 14—20, after detachment of the wing 22 from adhesion to the body 10, will not be accompanied by similar elevation of the liner 23 complementary thereto. The securement of the liner portions 23 and 12 by adhesive 24 is, relative to the securement of the liner 23 to the closure proper with the adhesive spots C, much greater, and the liner 23 will remain attached to the liner 12 and must be removed, as by cutting with a sharp knife, to afford access to the container contents 25. The marginal portions of the liner 23 remaining attached to the marginal liner portions 12a, as shown in Fig. 8, serves to enhance frictional contact of the constricted flanges 19 and 20 with the top edge of the container proper. The reclosure of the container is therefore relatively secure, by reason of the fastening of the wing 21 and the friction fit just described. Moreover, the interfitting nature of the parts 10, 19 and 20 is such as to afford adequate protection for the contents 25 even though the storage period involved during their consumption is lengthy. Air, dust and atmospheric moisture are successfully excluded. When one of the wings 21, 22 is employed as a hinge, the other serves well as a handle for closure opening purposes, which is of advantage due to the snugness of the friction fit of closure and container. Where the paperboard material employed is inherently stiff or is impregnated with a rigidifying material, this friction fit approximates a "snap" association due to the constriction of the flange 20 in the initial assembly operation.

While I have disclosed my invention as embodied in a single preferred form, it is by no means so restricted in its concepts. The liners 12 and 23, valuable as they are in the packaging of delicate materials, might be omitted without departure from the basic ideas of my invention. Likewise, containers of other polygonal forms can be improved by the inventive features herein set forth. Where the container is triangular or hexagonal in cross section, the number of wing portions 21, 22 may be increased to three; one serving as the hinge and the other two as the detachable fastening means. The expressions "paperboard," and "paper" are intended to include the various fibrous non-metallic equivalents recognized as equivalents in this art. Any of a large number of materials may be employed for the fabrication of the liner portions 12, 23, among which may be named waxed paper, transparent Celluloid or cellulosic films, foil and the like. Various adhesives are suitable for use at 13, 24 and C of the illustrated device. Furthermore, the impregnation of the paperboard portions of my container may be performed prior or subsequent to the embossing operation, or omitted entirely, depending upon the characteristics desired in the finished product.

These and other optional features will readily appear to those familiar with the art upon appreciation of the inventive concepts of my invention herein suggested. Accordingly, I claim my invention broadly, as indicated by the appended claim.

What I claim is:

A rectangular shipping and storage container of paper construction comprising: a body portion constituted of a plurality of heavy paperboard panels assembled as a rigid flat-sided tube, a closure for the bottom of said tube, a repeatedly reusable captive friction closure for the top of said tube, said top closure consisting of a single seamless sheet of lighter-weight paperboard than that of said tube embossed into the form of a central panel portion of less area than the top of said tube and disposable in the plane defined by the top edge thereof, a narrow marginal flange portion complementary to and snugly-receptive of the entire top edge of said tube, a single pair of similar flat wing-like extensions

depending from a pair of parallel sections of said marginal flange and coextensive therewith, said extensions respectively overlying opposite flat sides only of said tube and flatwise secured thereto to constitute a flexible paperboard hinge and a fastening tab diametrically opposite said hinge, and an annular channel portion depending within said flat sided tube and joining said central panel portion to said thus-hinged marginal flange portion, said annular channel portion having its outer component wall complementary to and snugly frictionally engageable within the upper portion of the flat-sided tube and having its inner component wall joining said outer component wall with said central panel portion to provide substantial resilient constrictability of said outer component wall as hinged into and out of frictional engagement with said tube on one of said wing-like extensions and preclude swelling of the engaged portion of said relatively rigid tube by such hinging closure operation.

EDWARD HILDEBRANDT.