Sept. 25, 1962 A. BOENECKE 3,055,534

CONTAINER

Filed Dec. 2, 1958 2 Sheets-Sheet 1

FIG-1

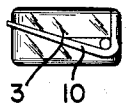


FIG-2

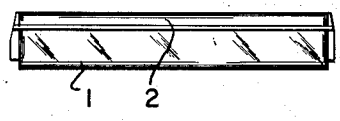


FIG-3

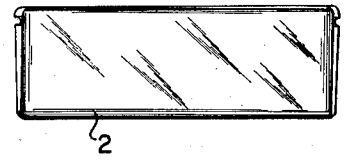


FIG-4

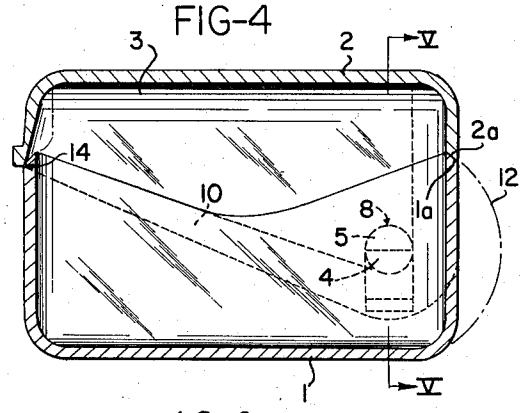


FIG-5

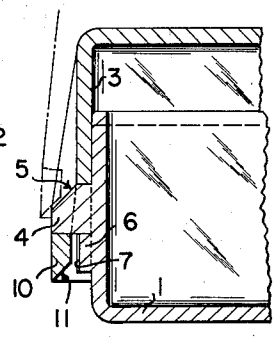


FIG-6

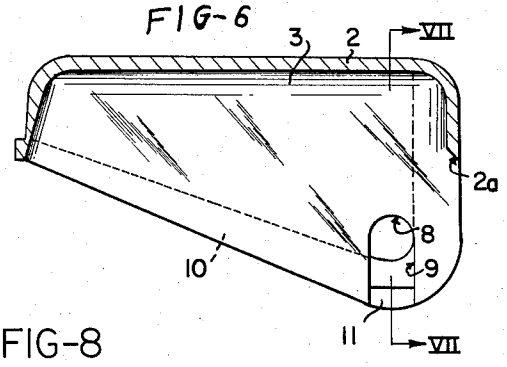


FIG-7

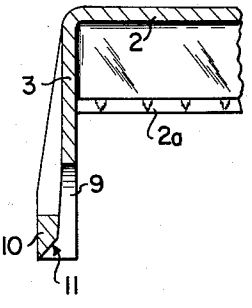
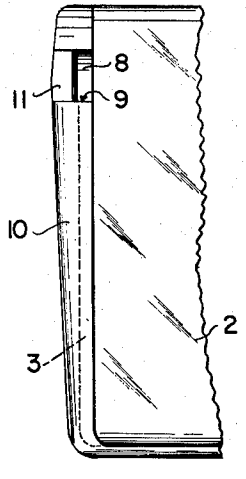


FIG-8



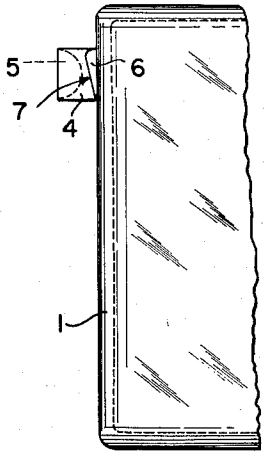


FIG-9

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CONTAINER

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FIG-10

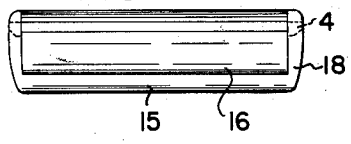
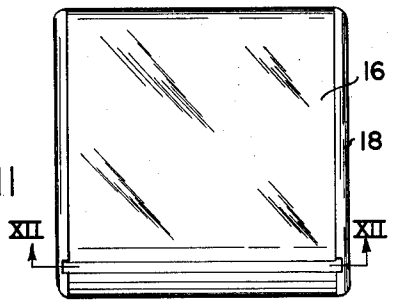


FIG-11



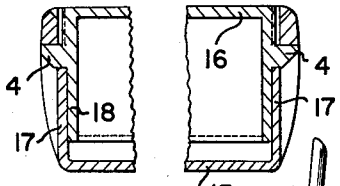


FIG-12

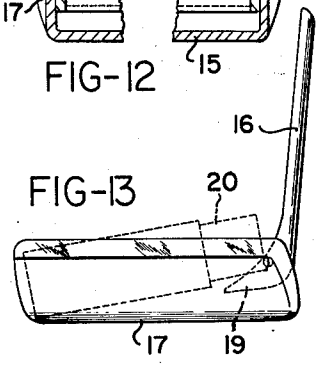


FIG-13

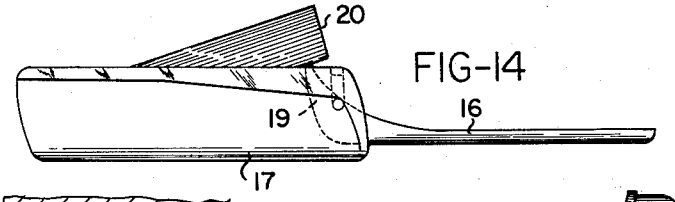


FIG-14

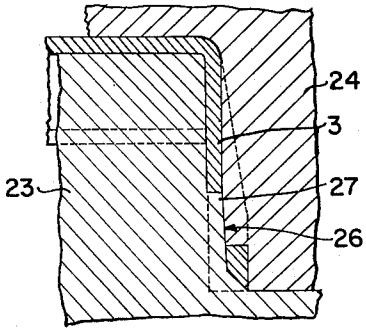


FIG-16

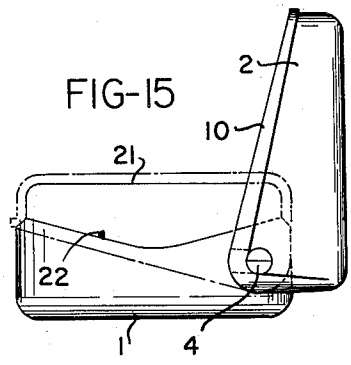


FIG-15

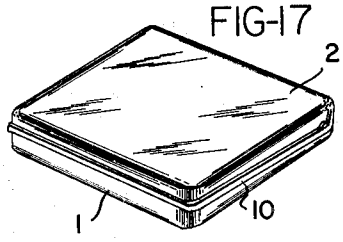


FIG-17

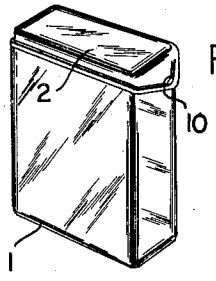


FIG-18

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United States Patent Office 3,055,534 Patented Sept. 25, 1962

3,055,534

CONTAINER

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Filed Dec. 2, 1958, Ser. No. 777,769
Claims priority, application Germany Dec. 3, 1957
7 Claims. (Cl. 220—31)

The present invention concerns a container, especially of synthetic material and, more particularly, a container comprising a lower portion and an upper or lid portion hinged to said lower portion. Heretofore known containers of the above mentioned general type with a lid hinged thereto have the drawback that their manufacture is in spite of fairly recently effected improvements still too expensive and also causes too much waste.

It is, therefore, an object of the present invention to provide a container of the above mentioned general type which will overcome the drawbacks referred to above.

It is another object of this invention to provide a container which is adapted to be made of synthetic material and can be assembled in a simple manner with a minimum of waste.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIGS. 1, 2 and 3 illustrate an end view, a back view and a top view of a container according to the invention.

FIG. 4 is an enlarged cross section through the container of FIGS. 1, 2 and 3.

FIG. 5 is a cross section along the line V—V of FIG. 4.

FIG. 6 shows a cross section through the lid employed in FIG. 4.

FIG. 7 is a partial section through the lid taken along the line VII—VII of FIG. 6.

FIG. 8 shows the lid seen from the bottom.

FIG. 9 is a partial view of the bottom portion of the container as seen from below.

FIG. 10 is an end view of a modified container according to the invention.

FIG. 11 is a top view of FIG. 10.

FIG. 12 is a longitudinal section taken along the line XII—XII of FIG. 11.

FIG. 13 shows the container of FIGS. 10 and 11 in opened condition.

FIG. 14 is a further embodiment of a container according to the invention as it may be used for instance for playing cards.

FIG. 15 is a side view of the container of FIGS. 1 to 9.

FIG. 16 shows the molding for forming of a lid according to the invention.

FIGS. 17 and 18 represent two different outer shapes of a container according to the invention.

General Arrangement

The container according to the present invention, which has one of the two portions thereof provided with two resilient side walls having a circular cut-out for receiving laterally protruding lugs of the other portion of the container, is characterized primarily in that each of said side walls has a guiding groove extending from the outer contour of the respective side wall to the adjacent circular cut-out and having an inclined sliding surface, said lugs likewise being respectively provided with inclined sliding surfaces.

This design makes it possible easily to slide the side walls of the lid portion over the lugs of the lower container portion until the lugs snap into the circular cut-out of the side walls.

In conformity with the present invention, the side walls

of the portions tiltable relative to each other will when the container is closed engage each other along parallel surfaces. The resilient wall is provided with a reinforcement located on the outside thereof and extending along the edge portion of the respective resilient wall. This reinforcement reinforces the side wall and depending on the cross section of the latter allows to maintain a certain desired resiliency of the side walls. In order to be able to maintain the lid closed without specific movable closing elements, a closure block is arranged perpendicular to the lugs and adjacent thereto with an inclined surface of substantially the width of the respective lug so that the inclined surface of the lugs and of the closure block face away from each other. When the container is closed, the closure block engages the guiding groove in the resilient side walls of the lid thereby maintaining the container safely closed, while offering a resistance against opening of the container only to such an extent that an accidental opening is prevented but a deliberate opening will be possible.

In conformity with the present invention, the lugs with the closure block may be connected either to the side walls of the lower portion of the container or correspondingly to the side walls of the lid. The lid may either overlap the side walls of the lower container portion from the outside or from the inside. An important advantage concerning the introduction of the bearing lugs into the cut-out therefor will be obtained if the guiding slot is so designed that the guiding slot will very slightly increase in depth toward the outside. This has also a bearing on the molding of the container portions if they are to be molded for instance in connection with injection molding. More specifically, the inserts for the guiding groove and the cut-outs for the bearing lugs may be arranged in the mold without requiring cores or sliding plates or the like, which as is well known are subjected to considerable wear.

A container according to the present invention is suitable for numerous purposes, as for instance for the storing of packed or unpacked material in the food industry, for pharmaceutical articles, for playing cards, writing utensils, and many other purposes.

Structural Arrangement

Referring now to the drawings, FIGS. 1, 2 and 3 show a container according to the invention which comprises a lower body **1** and an upper body or lid **2**. The lid **2** has side walls **3** which laterally extend over the lower container body **1**. The lower container body **1** has laterally extending lugs **4** on both sides thereof. Each lug **4** is provided with a sliding surface **5**. Perpendicular to the lugs there are arranged relatively low closure blocks **6** with an inclined surface **7**. The highest portion of the closure block **6** is rounded in order to allow a smooth sliding movement for the parts adapted to be closed. The side walls **3** of the lid are provided with round cut-outs **8** corresponding in diameter and location to the lugs **4**. Each side wall is furthermore provided with a guiding groove **9** the sides of which extend tangentially to the circumferential line of the adjacent cut-out **8**. Each side wall of the lid is furthermore provided with an angular reinforcement **10** which increases the thickness of the wall at the respective portion thereof and thus assures a corresponding width and depth of the guiding groove **9** which increases very slightly in width toward the outer contour of the lid. At the outer end of groove **9** near the outer edge **10** there is a sliding surace **11** which corresponds to the sliding surface **5** of the adjacent lug or stud. The rear edges **1***a* and **2***a* of the lower and upper container bodies **1** and **2** respectively are inclined so that when the container is closed the said surfaces abut each other. The joints at the front walls of the upper and lower container

bodies may be designed in the same manner so that they will be in alignment with each other and engage each other along horizontal or inclined surfaces. However, in conformity with FIG. 4, the edges may be so arranged that they form with each other a cutting edge **14** for tearing paper if the latter should form the goods in the container.

When the lid is closed the blocks **6** snap into the grooves **9** and serve as detent means for releasably holding the lid closed.

FIG. 5 shows in dot-dash lines a resilient wall **3** in its outwardly bent position which position the wall occupies when it slides over the stud or lug **4** for hinging the lid to the lower container body.

FIG. 8 shows the design of the guiding groove **9** which latter widens slightly toward the outside, for instance at an angle of 3° (see FIG. 7).

FIGS. 10 to 14 illustrate embodiments with a lid **16** journalled within the lower container body **15** so that the resilient wall **17** will rest against the lateral walls **18** and will be journalled on the studs **4**.

According to the embodiment shown in FIGS. 13 to 16, one longitudinal wall **19** of the container lid is so designed as simultaneously to serve as lifting means for the goods **20** in the container. It will be seen that when the lid **16** is being tilted upwardly from its closed position, the shorter wall or arm **19** catches below the goods **20** and lifts the same so that when the lid **16** occupies the position shown in FIG. 13, the goods **20** have been lifted into a position in which they can easily be grasped.

With the embodiment shown in FIG. 15, the side walls of the container have a somewhat flat V-shaped upper edge **22** so that when the lid **2** is in the position shown in FIG. 15, the goods in the lower container body can easily be grasped.

FIGS. 17 and 18 show additional shapes of containers according to the invention.

Finally, with regard to FIG. 16, this figure shows how the mold **23**, **24** may be designed to furnish a corresponding inclined surface **26** for the inclined inner surface of guiding groove **9**. The guiding groove **9** will be materialized by providing in mold **23** a nose **27** which is offset within the width of side wall **3**. In this way, a smooth joint with the mold portion **24** will be obtained, and the two mold portions will move away from each other in view of the inclined surface **26** when the mold is being opened.

It is, of course, to be understood that the present invention is, by no means, limited to the particular constructions shown in the drawings but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. In a container, especially of synthetic material: a vessel having upstanding side walls and open at its top, a lid having dependant resilient side walls overlapping the side walls of said vessel for closing the latter, each of the side walls of said lid being provided with a substantially circular bore, said bores being in axial alignment with each other, a pair of axially aligned lugs integral with the side walls of said vessel and pivotally engaging said bores to thereby hinge said lid to said vessel, each of said side walls of said lid having a guiding groove leading from the respective adjacent bore to an outer edge of said side walls of said lid, each of said guiding grooves and said lugs having an inclined sliding surface for aiding said lid to slide into pivotal engagement with said lugs during the initial assembly of said lid and said vessel to form a complete container, and detent means on the vessel releasably engaging the lid in its closed position.

2. A container according to claim 1, in which the distance between the bottom wall of each guiding groove is inclined slightly outwardly toward the outer end of the respective guiding groove.

3. A container according to claim 1, in which at least the rear edges of said lid in closing position of the latter rest on the adjacent edges of said vessel, the edges of said lid and vessel resting upon each other being inclined downwardly toward the outside of said container.

4. A container according to claim 1, in which the front edge of said vessel and the adjacent front edge of said lid in closing position of the latter rest upon each other, said front edge of said vessel having a surface inclined downwardly toward the outside of said vessel, and said front edge of said lid resting upon the inclined front edge of said vessel near the outer surface thereof so as to form a cutting edge therewith.

5. In a container, especially of synthetic material: a vessel open at its top and having front and rear walls and also having side walls, a lid having dependant resilient side walls adjacent the side walls of said vessel for closing the latter, each of the side walls of said lid being provided with a substantially circular bore and having two edges adjacent the respective bore reinforced so as to form a marginal portion of increased thickness, said bores being in axial alignment with each other, a pair of axially aligned lugs integral with the side walls of said vessel and hingedly extending through said bores and over at least a part of said marginal portions, each of said side walls of said lid having a guiding groove leading from the respective adjacent bore to the bottom edge of said side walls of said lid, each of said guiding grooves having at the edge of the lid and said lugs also having an inclined sliding surface for cooperation with each other for aiding said lid to slide into pivotal engagement with said lugs during the initial assembly of said lid and said vessel to form a complete container, and detent means on the vessel engageable with said grooves in the closed position of said lid.

6. In combination: a first container part provided with side walls, a second container part provided with side walls and movable relative to said first container part to form with the latter a complete container, the side walls of at least one of said container parts being flexible and resilient, the side walls of one of said container parts being provided with outwardly projecting lugs, and the side walls of the other container part being provided with bores for rotatably receiving said lugs and also having marginal wall portions of increased thickness extending partially around said bores, each of those side walls which is provided with a bore having a guiding groove leading from the respective bore to the periphery of the respective side wall and having an inclined surface at the end opposite the respective bore ascending from said periphery in the direction toward the adjacent bore, the width of each of said grooves being slightly in excess of the diameter of said lugs, said lugs also being provided with an inclined surface, and detent means on said one container part side walls releasably engageable with said grooves in the closed position of said container.

7. In a container, especially of synthetic material: a first container member forming a vessel having lateral walls and open at its top and having front and rear walls, a second container member forming a lid for said first container member and having depending resilient side walls, each of the side walls of one of said container members being provided with a substantially circular bore, said bores being in axial alignment with each other, said side walls having bores also having a thickened marginal edge, the outsides of the side walls of the other container member respectively having integral therewith axially aligned lugs extending through said bores to thereby establish a hinge connection between said two container members, each of the side walls which are provided with a bore having a guiding groove leading from the respective adjacent bore to an outer edge of said last-mentioned side walls, each of said guiding grooves at the end thereof and also said lugs having an inclined surface adapted to cooperate for aiding said two container members to slide into pivotal engagement with each other during the initial assembly thereof to form a complete container, and detent

means on the side walls that are provided with the lugs for releasable engagement with said grooves.

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