

Dec. 25, 1956

M. C. WEINER
CONTAINER CONSTRUCTION

2,775,389

Filed Dec. 20, 1952

2 Sheets-Sheet 1

Fig. 1.

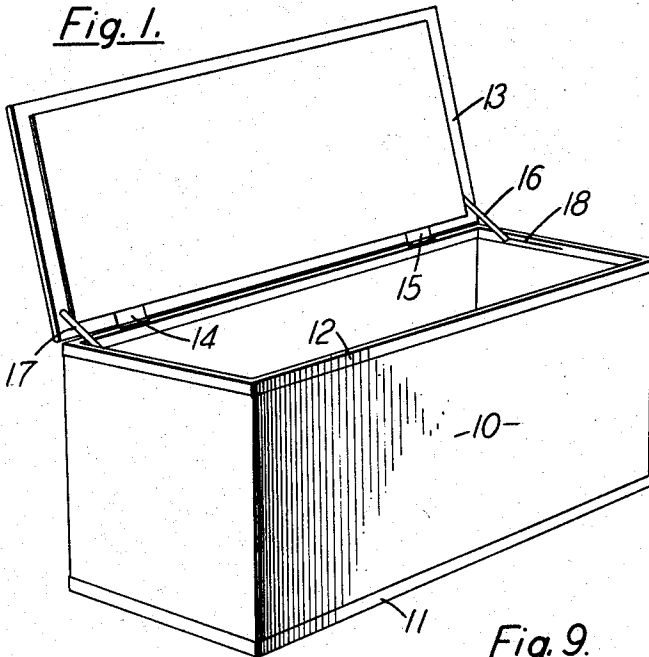


Fig. 2.

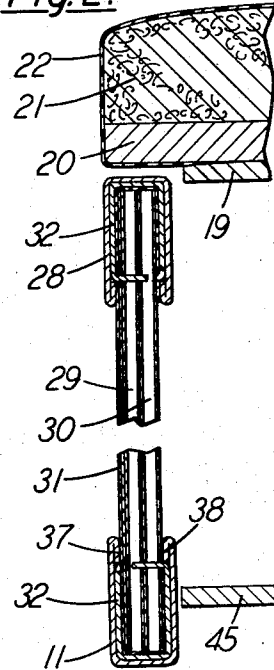


Fig. 3.

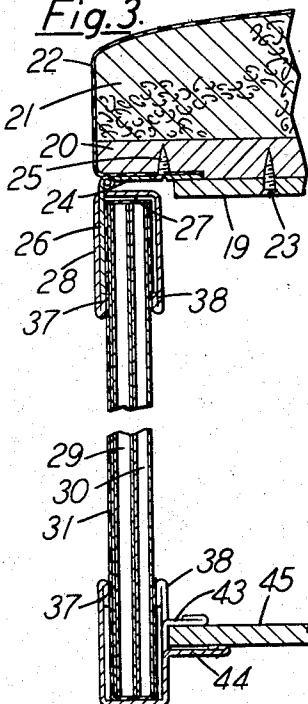


Fig. 9.

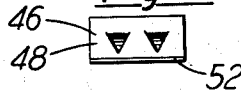


Fig. 8.

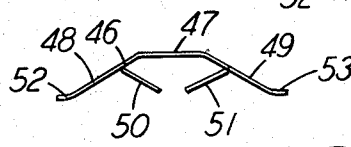


Fig. 11.

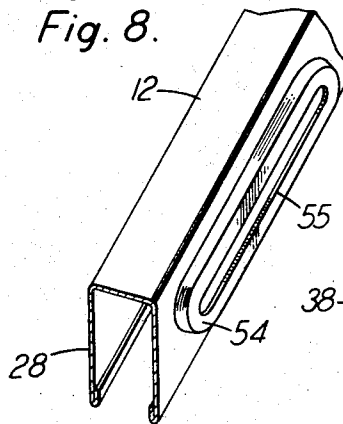


Fig. 4.

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2 Sheets-Sheet 2

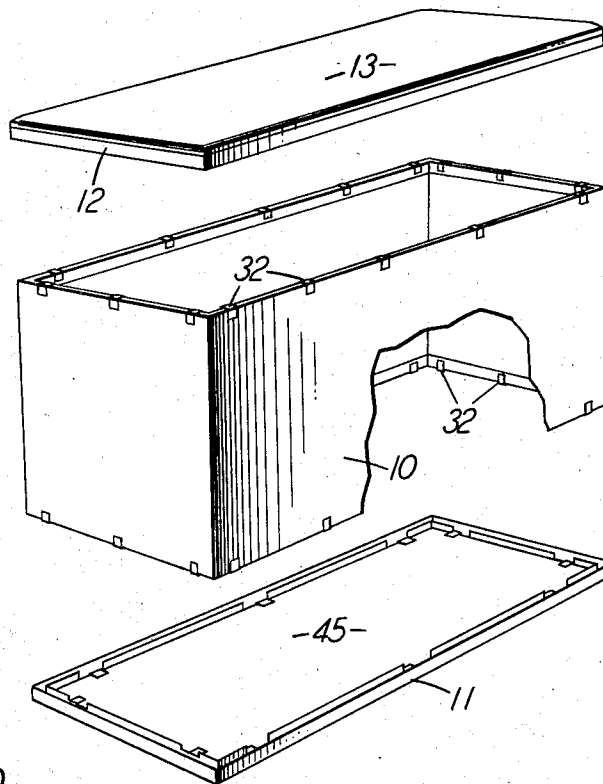


Fig. 5.

Fig. 10.

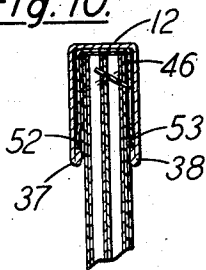


Fig. 7.

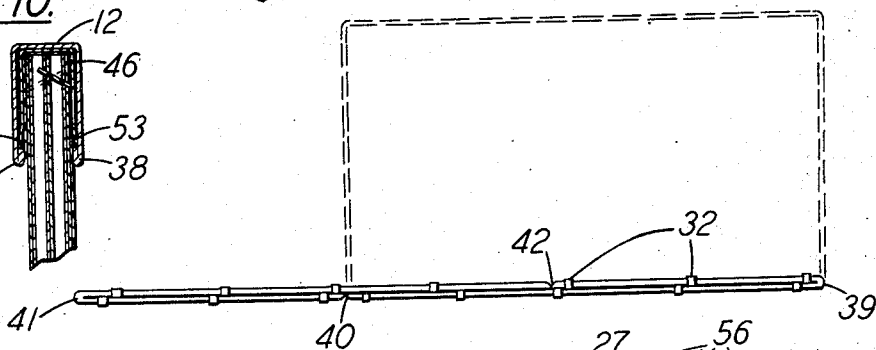


Fig. 6.

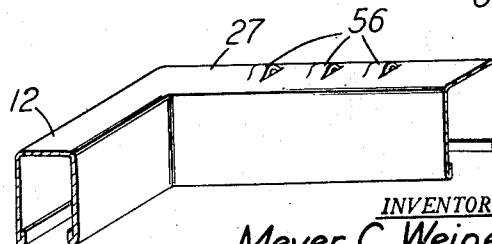
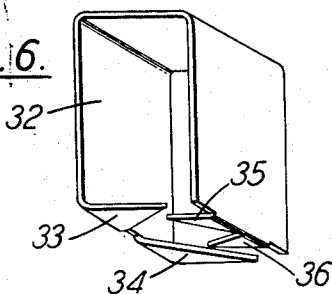


Fig. 12.

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2,775,389

CONTAINER CONSTRUCTION

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2 Claims. (Cl. 229—23)

The present invention relates to the construction of containers. The principles disclosed herein have been found to be very versatile in their application, and have been found appropriate for a wide variety of products. A storage chest for miscellaneous articles, or a container for specific articles or merchandise may be very effectively and inexpensively formed according to this invention. This general formation may be slightly modified to permit the device to additionally operate as a hassock, or as a combined chest and drawer unit similar to the conventional wardrobe. With suitable variations in dimensions, the unit may be used as the storage and writing portion of a child's desk, particularly if the hinged cover provided with the preferred form is constructed of a material appropriate for marking with chalk.

A feature of primary importance in the present invention is the formation of the components of the unit in such a fashion that it may be shipped from the point of manufacture in the knock-down condition. The user of the unit assembles it through a very simple series of operations; and when assembled, the device is very strong, durable, and inexpensive. The type of construction permits an almost infinite variation in the dimensions and appearance of the material with relatively small modification of the tools used in manufacturing it. Preferably, the container is formed by a sidewall unit having a series of panels hinged together so that when opened they establish a rectangular configuration. The locations of the hinge connections are such that the unit is capable of laying at so that the various panel sections are substantially parallel to each other. In most of the forms in which this invention is manufactured, the sidewall panel unit is primarily constructed of corrugated paper material, with a suitable covering over it. The paper material (preferably a double layer) and the covering material are initially held together by a series of clips, and the entire sidewall panel unit may be handled as one item after the installation of the clips has been completed.

A bottom frame is constructed in an outline similar to a cross section of the opened position of the sidewall unit, and has a channel-shaped portion adapted to receive the end of the sidewall unit to rigidly establish the configuration of the container. The assembly of the bottom frame with the sidewall unit merely involves pressing the one into engagement with the other, and the sides of the channel section preferably cooperate with the clips to maintain the engagement after it has been established. It is recommended that the frame be bent into form from a strip of sheet metal rolled to the proper transverse cross section. Variation in the size of the frame then requires only the re-adjustment of bending jigs, rather than the preparation of new dies.

The bottom frame is also provided with a series of tabs preferably bent outwardly from the material of the side of the channel section. These tabs are formed in two sets, each tab of a particular set being in coplanar relationship. The planes of the two sets of tabs are parallel and spaced from one another an amount equal to the

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thickness of the bottom panel inserted between the sets. The planes of the sets are disposed across the opening of the frame so that the bottom panel operates to close off the bottom of the container.

- 5 A top frame is similar in construction to the bottom frame as far as the channel engagement of the upper end of the sidewall unit is concerned. A cover is hinged to the top frame, and preferably, one side of the hinge connection is formed by a suitable operation displacing portions of the material of the back of the channel portion of the top frame. Links connecting the cover with the frame are also preferably installed to limit the opening movement of the top, and guide slots are formed on a portion of the top frame to act as guides for one end of the links.

The several features of the present invention will be discussed in detail through an analysis of the particular embodiments illustrated in the accompanying drawings. In the drawings,

- 20 Figure 1 shows a perspective view of a chest-type container constructed according to the present invention.

Figure 2 is a sectional elevation through a portion of the container shown in Figure 1, on an enlarged scale.

- 25 Figure 3 is a section taken at another point on the container shown in Figure 1, and illustrates one form of construction surrounding the hinge connecting the cover to the top frame.

Figure 4 is a perspective view on an enlarged scale showing the construction of a portion of the bottom frame.

- 30 Figure 5 is an exploded view showing the relationship of the bottom frame, sidewall, and top construction prior to their assembly into the unit illustrated in Figure 1.

Figure 6 is an enlarged perspective view of the sidewall-assembly clips illustrated in Figures 2 and 5.

- 35 Figure 7 is a view showing the collapsed arrangement of the sidewall unit, and showing the open or erected condition in dotted lines.

Figure 8 shows a modified form of a panel-assembly clip, prior to installation.

- 40 Figure 9 is a side view of the clip illustrated in Figure 8.

Figure 10 shows the installation of a clip of the type shown in Figures 8 and 9, and showing the engagement of the clip with the frame.

- 45 Figure 11 shows a perspective view of a portion of the top frame containing the guide slots.

Figure 12 shows a perspective view of a portion of the top frame having an integral hinge construction.

- 50 Referring to Figure 1, the illustrated container includes the sidewall portion 10, a bottom frame 11, and a top frame 12. The top frame 12 has a cover 13 hinged at 14 and 15, and also connected to the top frame by the links 16 and 17. One end of each of the links 16 and 17 is pivotally connected to the cover 13, and the opposite end rides within slots in the side of the frame 12. The formation of these guide slots (as indicated at 18 in Figure 1) may be as shown in Figure 11, with the slot formed integrally with the material of the channel. Alternatively, and at some increase in expense, a separate member may be secured to the frame 12 to serve this purpose if desired.

- 55 The construction of the top is best indicated in Figure 2, and includes a facing panel 19, a base panel 20, a layer of padding 21, and a suitable cover 22. Preferably, the cover 22 is brought around the base panel 20 and tacked or otherwise secured thereto. The facing panel 19 may then be applied so as to conceal the exposed edges of the covering material. The facing panel 19 is preferably secured to the base panel 20 by screws as indicated at 23 in Figure 3.

The hinged connection between the cover 13 and the top frame 12 may be as shown in Figure 3. The upper

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leaf 24 is secured to the base panel 20 by screws as indicated at 25. If desired, the base panel 20 may be offset to accommodate the thickness of the cover 22 and the hinge leaf 24 so that the facing panel 19 may lay flat across the remainder of the base panel. The lower leaf 26 of the hinge passes through an aperture in the back 27 of the channel-shaped portion 28 of the frame 12. The lower leaf 26 is secured to the side of the channel section 28, preferably by spot welding, and this construction gives adequate strength while still presenting a desirable appearance.

The sidewall construction shown in the drawings includes a double thickness of corrugated paper, the thicknesses being indicated at 29 and 30. A sheet of covering material 31 is positioned around the outer surface of the sidewall panel unit, and the three laminae are secured together by clips as indicated at 32. The formation of these clips is best shown in Figure 6. The cross section of these clips is channel-shaped and of such dimensions as to be received within the channel 28 of the top frame (and also the bottom frame). When originally formed, the channel configuration is "open" a sufficient amount so that the three layers constituting the sidewall panel sections may be received between the prongs 33-34 attached to one side of the clip, and the prongs 35-36 on the other. After the assembled panel thicknesses have been inserted in this fashion, application of pressure to the sides of the clip will force the prongs 33, 34, 35, and 36 into the material as indicated in Figure 2 and firmly maintain the assembled relationship thereof.

The clips 32 serve a dual purpose. In addition to maintaining the assembly of the sidewall panel components, they form a solid surface for the intumed portions 37 and 38 on the sides of the frame channels to firmly interlock with on the assembly of the frames to the sidewall unit. The completion of the assembly results in the engagement of the ends of the intumed portions 37 and 38 with the clips at the point where the clips are turned inwardly to form the engaging prongs 33, 34, 35, and 36. Prior to the assembly of the sidewall unit 10 into engagement with the top and bottom frames, it may be laid flat as shown in Figure 7 to facilitate shipment. The various panels of the sidewall unit are hinged, as by creasing the material, at 39, 40, 41, and 42. When the sidewall is expanded into the position shown in dotted lines in Figure 7, it is prepared to be assembled with the top and bottom frames.

The bottom of the unit is held in position by a series of tabs 43 bent from the material of the bottom frame 11. The tabs 43 are in substantially coplanar relationship, and another set of tabs 44 is in similar coplanar relationship, but parallel to and spaced from the plane of the tabs 43. A bottom panel 45 is received between the sets of tabs 43 and 44, and is disposed across the opening of the bottom frame 11 to form the bottom of the container 10.

Referring to Figures 8 and 9, a modified form of sidewall-assembly clip is illustrated. This unit may be used in place of that illustrated in Figure 6. The clip 46 has a back portion 47, and the sides 48 and 49. Sets of prongs as indicated at 50 and 51 are formed from material of the sides 48 and 49, respectively; and in the "open" position of the clip shown in Figure 8, enough space exists between the prongs 50 and 51 to admit the components of the sidewall assembly. Closure of the clips with pliers or similar instruments causes the prongs 50 and 51 to engage the material of the sidewall as shown in Figure 10. The sides 48 and 49 are preferably formed with out-turned portions 52 and 53, respectively to form more effective and prominent points for the engagement of the intumed portions of the top and bottom frames, as shown in Figure 10.

Referring to Figure 11, the preferred method of forming the guide slots for the lower ends of the links 16 and 17 is illustrated. A portion of the side of the channel-shaped cross section 28 of the top frame 12 is displaced

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outwardly as indicated at 54. A slot 55 is formed in this area, and the formed area 54 has the primary purpose of permitting the insertion of a short length of an end of the links into the slot without interfering with the panel material.

Figure 12 illustrates a modified formation of the hinge connection between the cover 13 and the top frame 12. The material of the back 27 of the channel-shaped portion 28 of the frame 12 is "lanced" at a series of places 56 to form the lower half of the hinge connection. With this construction, an upper half in the shape of the usual hinge leaf will be mounted on the cover, and a hinge pin (not shown) inserted after assembly of these components in proper relationship. The advantage of the construction shown in Figure 12 was primarily one of reduced cost.

The particular embodiments of the present invention which have been illustrated and discussed herein are for illustrative purposes only and are not to be considered as a limitation upon the scope of the appended claims. In these claims, it is my intent to claim the entire invention disclosed herein, except as I am limited by the prior art.

I claim:

1. A container, comprising: collapsible sidewall panel means including a series of hingedly connected sections each having a plurality of layers of material secured together by "U"-shaped clips provided with prongs engaging said material, said sections being arranged to provide for the collapsing of said panel means into a position wherein all of said sections are substantially parallel; a bottom assembly including a frame having channel means receiving an end of said sidewall panel means including said clips, said bottom frame also having first and second sets of tabs formed from the material of said channel means, the tabs of each of said sets being in coplanar relationship, and the planes of said sets being spaced apart, substantially parallel, and disposed across the opening of said frame; a bottom panel positioned between said sets of tabs; a top assembly including a frame having channel means receiving an end of said sidewall panel means including said clips; and means locking said top and bottom frame means in engagement with said sidewall panel means, said locking means including an inwardly-turned portion on said channel means engaging the ends of and enclosing said clips, said inwardly-turned portion being substantially parallel to the adjacent sidewall panel means, and engaging said clips at the extreme inner edge of said inwardly-turned portion.

2. A container, comprising: collapsible sidewall panel means including a series of hingedly connected sections each having a plurality of layers of material secured together by "U"-shaped clips provided with prongs engaging said material, said sections being arranged to provide for the collapsing of said panel means into a position wherein all of said sections are substantially parallel; a bottom assembly including a frame having channel means receiving an end of said sidewall panel means including said clips, and also including a bottom panel mounted on said bottom frame; a top frame having channel means receiving an end of said sidewall panel means including said clips; and means locking said top and bottom frame means in engagement with said sidewall panel means, said locking means including means engaging the ends of and enclosing said clips.

References Cited in the file of this patent

UNITED STATES PATENTS

1,700,164	Hulbert	Jan. 29, 1929
2,052,489	Purdy	Aug. 25, 1936
2,061,485	Scheinman	Nov. 17, 1936
2,225,958	Mandel	Dec. 24, 1940
2,233,480	Jonas	Mar. 4, 1941
2,233,906	Zalkind	Mar. 4, 1941
2,319,641	Speir	May 18, 1943
2,396,140	Zalkind	Mar. 5, 1946