June 17, 1958 N. E. GIANNINI 2,839,348

CABINET

Filed Feb. 6, 1957 4 Sheets-Sheet 1

Fig. 18.

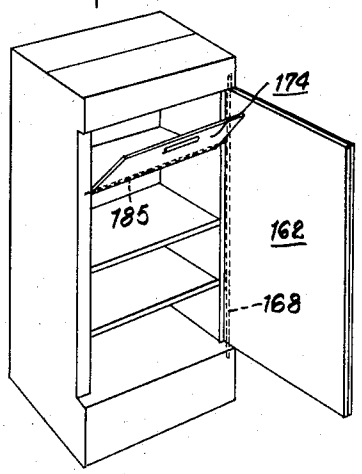


Fig. 18.

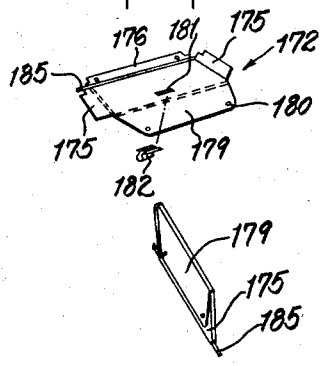
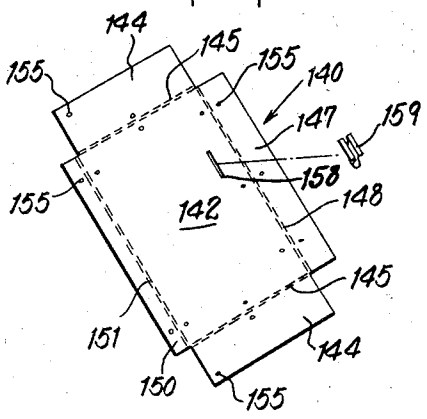


Fig. 18a

Fig. 15.



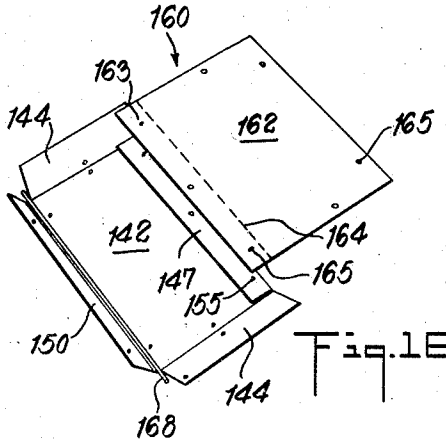


Fig. 16.

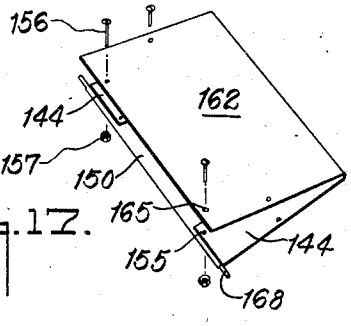


Fig. 17.

June 17, 1958 N. E. GIANNINI 2,839,348

CABINET

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Fig. 10.

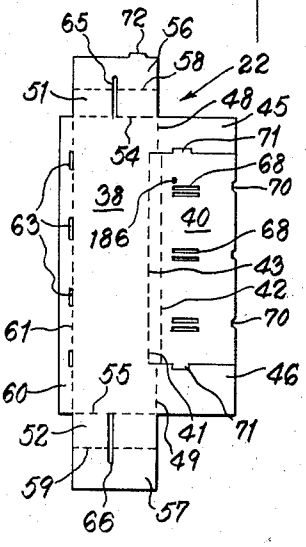


Fig. 11.

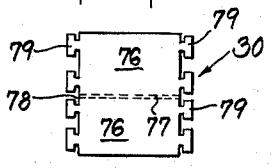


Fig. 12.

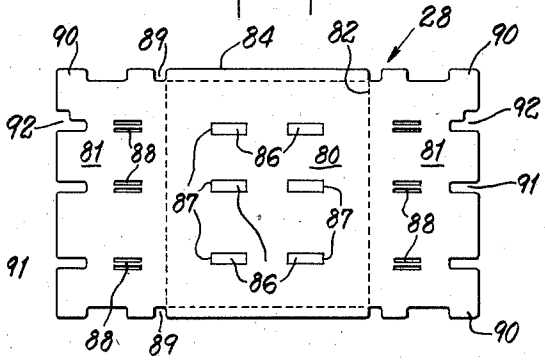


Fig. 13.

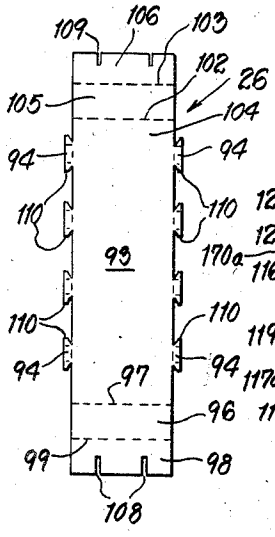


Fig. 14a

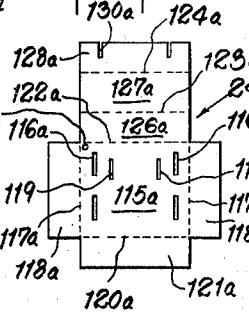
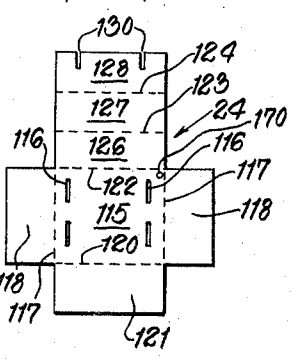


Fig. 14.



June 17, 1958 N. E. GIANNINI 2,839,348

CABINET

Filed Feb. 6, 1957 4 Sheets-Sheet 3

Fig. 4.

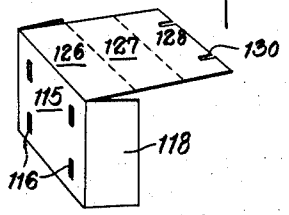


Fig. 5.

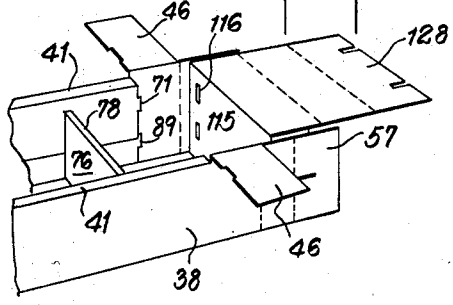


Fig. 6.

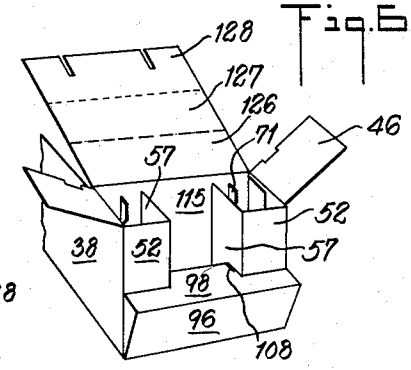


Fig. 7.

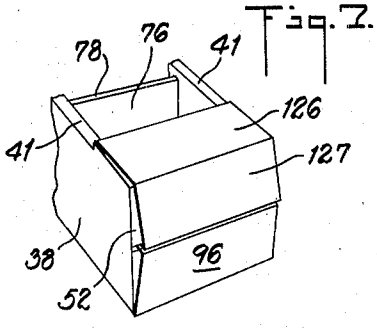


Fig. 8.

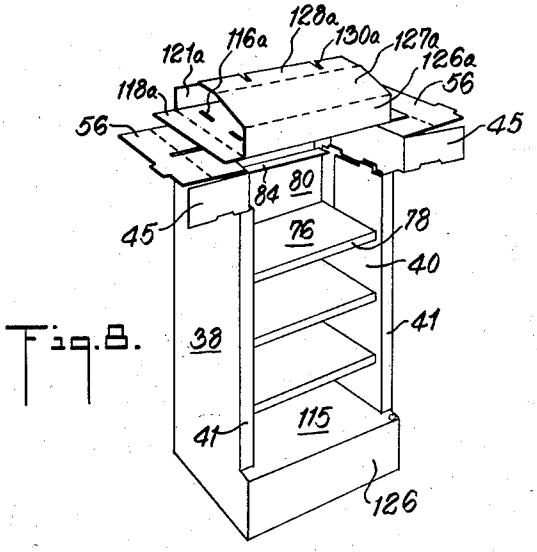
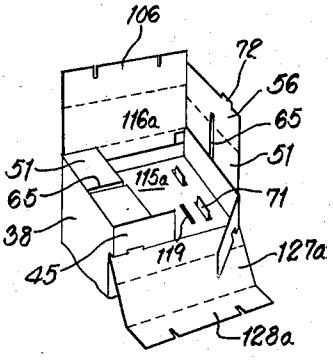


Fig. 9.

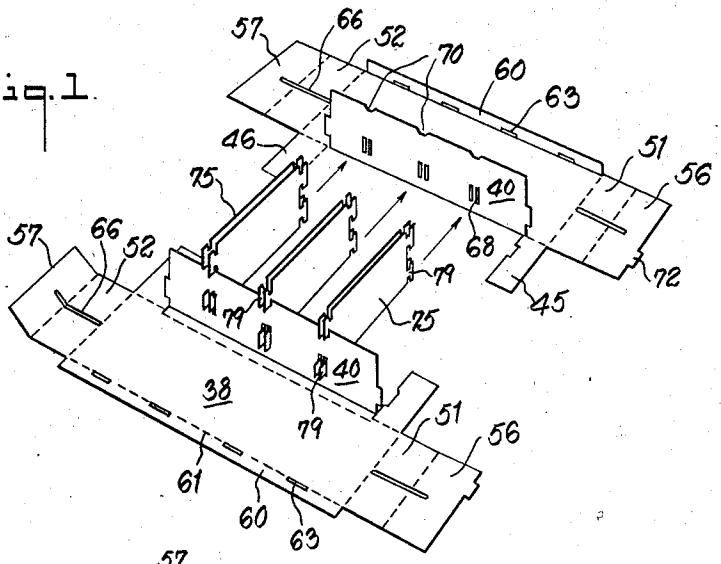


June 17, 1958 N. E. GIANNINI 2,839,348

CABINET

Filed Feb. 6, 1957 4 Sheets-Sheet 4

Fig. 1.



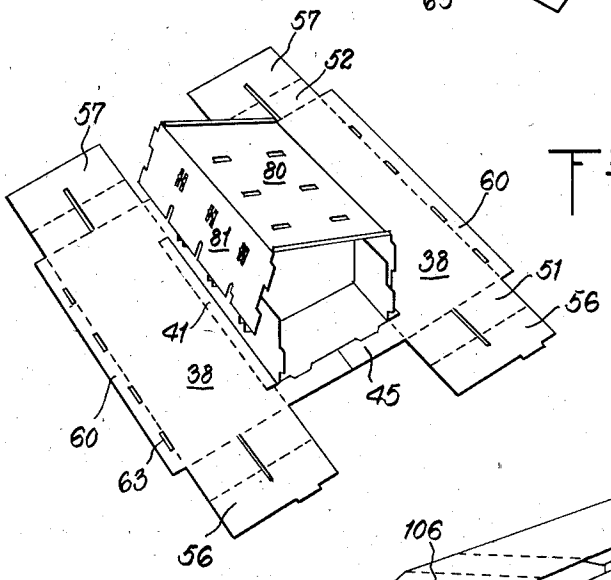


Fig. 2.

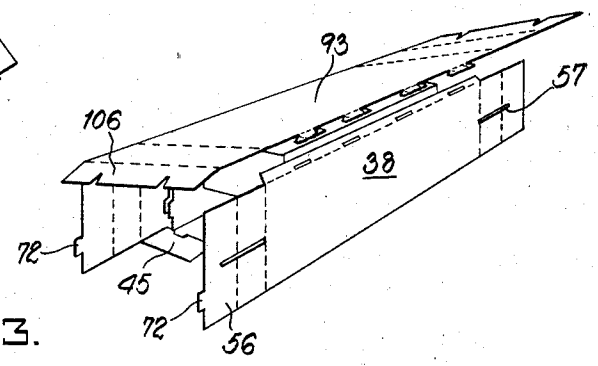


Fig. 3.

United States Patent Office 2,839,348 Patented June 17, 1958

2,839,348

CABINET

Nunzie E. Giannini, Passaic, N. J., assignor to Eastern Corrugated Container Corporation, Inc., Clifton, N. J., a corporation of New Jersey

Application February 6, 1957, Serial No. 638,586

4 Claims. (Cl. 312—263)

This invention relates to a cabinet formed from flexible sheet material such as corrugated cardboard or fiberboard and, while not necessarily confined thereto, it is more particularly concerned with a toy cabinet simulating a refrigerator adapted for use by children in play.

Simulated appliances, such as refrigerators, have been proposed in various forms for use by little girls in make-believe housekeeping. The provision of very small miniature appliances has presented no particular problem and these are readily formed from metal or wood with no special difficulty. It has been found however, that children have a strong preference for large-scale toys of this nature, more particularly toys which are about half-scale in relation to the actual appliance so that the toy bears to the child the same proportional relationship that the actual appliance does to an adult. Such large-scale toys, however, present serious problems with respect to construction. Attempts to use metal and wood, for example, have resulted in very heavy expensive constructions which involve major manufacturing difficulties and are difficult for a child to manipulate and move about between play periods. Furthermore, such large-scale metal and wooden toys necessarily command a sales price which puts them out of the reach of the average family. Attempts have been made, therefore, to solve these problems by the use of lighter, less-expensive materials such as cardboard or fiberboard. These attempts, however, have heretofore met only with limited success and have encountered other problems owing to the fact that a sturdy construction has not been realized. Such toys formed from cardboard and the like have lacked dimensional stability and have collapsed or have been easily damaged during normal play, particularly when any weight has been applied to them.

It is an object of the present invention to provide a cabinet construction involving the use of flexible sheet material such as corrugated cardboard or fiberboard which avoids the disadvantages and drawbacks of prior constructions uitilizing this type of material.

It is another object of the invention to provide a cabinet construction of the character indicated which has high dimensional stability and is effectively resistant to applied weight.

It is a further object of the invention to provide a large-scale toy which is inexpensive yet which is strong and has a long life in use.

It is a still further object of the invention to provide a large-scale toy refrigerator formed from flexible sheet material which simulates the full-size appliance yet is light in weight, sturdy, and easily manipulated and moved by a child.

In accordance with the invention, I provide a cabinet construction formed from a plurality of interengaging sheets of flexible sheet material, more particularly corrugated cardboard or fiberboard, which has been suitably cut and scored. The cabinet comprises a pair of identical side wall members, a pair of end members, a back member, an interior wall member, and a plurality of shelves, all interengaged in locking relationship. In a preferred

embodiment the cabinet further includes at least one pivotally-attached door. In the cabinet construction the side wall members define the vertical sides of the cabinet and have end flaps cooperating with the end members and with the back member to form a reinforced top and bottom for the cabinet. The side wall members also have lateral flaps which cooperate with the interior wall member and with the shelves to interlock these elements in place.

It is a feature of the invention that the various flexible sheet elements interlock to form a pressure-resistant assembly having exceptional vertical and lateral dimensional stability.

It is another feature of the invention that the walls and ends of the assembly are effectively reinforced by the cooperating action of adjacent sheet elements to make it possible for the cabinet to withstand substantial weights without damage.

Other objects and features of the invention will be readily apparent from the following detailed description and from the accompanying drawings, wherein,

Fig. 1 is a perspective view of the partially-assembled cabinet, showing the interrelationship of the side wall members and the shelves;

Fig. 2 is a similar view showing the interior wall member partly in position;

Fig. 3 is a further perspective view illustrating the joining of the back member to the partial assembly of Fig. 2;

Fig. 4 is a perspective view of one of the end members bent to be received in the bottom of the partial assembly of Fig. 3;

Fig. 5 is a fragmentary perspective view of the cabinet showing the end member of Fig. 4 partially inserted in the bottom of the assembly;

Fig. 6 is a fragmentary bottom perspective view showing the parts of the end member, the side wall members and the back member partially interlocked;

Fig. 7 is a similar view showing the complete interlocking of parts to form the bottom of the cabinet assembly;

Fig. 8 is a perspective view of the cabinet with the top portion still in only partly assembled condition;

Fig. 9 is a fragmentary top perspective view of Fig. 8 showing the top portion of the cabinet with the end flaps of the side members, the back member and the top member in open position before final interlocking;

Fig. 10 is a plan view of the blank of each side wall of the cabinet shown in the preceding figures;

Fig. 11 is a similar view of the blank for each shelf of the cabinet;

Fig. 12 is also a plan view, illustrating the blank which defines the interior wall member of the cabinet;

Fig. 13 is a like view of the blank from which the back member is formed;

Fig. 14 illustrates in plan view the blank corresponding to the bottom end member of the cabinet illustrated;

Fig. 14*a* is a similar view of the blank for the top end member;

Fig. 15 is a plan view of the principal blank of the door which may be provided in the cabinet;

Fig. 16 is a perspective view of the partly assembled portions of the door of the cabinet;

Fig. 17 is a similar view of the portions of the door substantially completely assembled.

Fig. 18 is a perspective view of the blank for an auxiliary inner door;

Fig. 18*a* is a similar view of the completely assembled auxiliary door; and

Fig. 19 is a perspective view of the completely assembled cabinet, showing the doors mounted in it.

Referring to the drawings, the illustrative embodiment of the cabinet shown is designated generally by the refer-

ence numeral **20** and is formed by the interconnection of two side-wall member blanks **22** (Fig. 10), two end member blanks **24** and **24***a* (Figs. 14 and 14*a*), one back member blank **26** (Fig. 13), one interior wall member blank **28** (Fig. 12) and three shelf blanks **30** (Fig. 11) and, when provided with doors, further includes a front door formed from the blanks **32** and **33** shown in Figs. 15–17 and an inner door formed from the blank **35** shown in Figs. 18 and 18*a*. Referring more particularly to Fig. 10, wherein is shown one of the two identical side-wall member blanks **22**, each blank **22** is cut and scored to define a main body portion **38**, a side panel **40** separated from body portion **38** by an intermediate portion **41** defined by score lines **42** and **43**, wings **45** and **46** flexibly connected to body portion **38** along score lines **48** and **49**, respectively, end panels **51** and **52** connected to the body portion along score lines **54** and **55**, respectively, and end flaps **56** and **57** connected respectively to end panels **51** and **52** along score lines **58** and **59** respectively, and an edge flap **60** flexibly connected to the body portion along score line **61**. A plurality of cut-outs **63** are formed in edge flap **60** adjacent score line **61**, cut-outs **65** and **66** extend outwardly from score lines **54** and **55**, respectively, and pairs of cut-outs **68** are formed in side panel **40**. In addition, side panel **40** is provided with notches **70** along its free edge and with tongues **71** at each end. End flap **56** has a tongue **72** formed along its free end edge.

It will be understood that the blanks **22** as well as the other blanks to be described below are suitably formed from flat sheets of corrugated fiberboard, solid fiberboard, boxboard or other similar foldable material which is lightweight yet possesses adequate flexibility for the purposes of this invention, and that these blanks are cut and scored by suitably-formed dies in accordance with conventional practice in the fiberboard container industry.

As shown in Fig. 1, the two blanks **22** are first interengaged with three shelves **75** formed from blanks **30** having the structure shown in Fig. 11. Each blank **30** has two panels **76** flexibly interconnected along double score lines **77** to an intermediate strip **78** and provided with T-shaped locking tongues **79**. As shown in Fig. 1, the locking tongues **79** engage in the cut-outs **68** and notches **70** of the side panels **40** of the blanks **22**. Also engaging with the locking tongues **79** is the interior wall member formed from blank **28**. As shown in Fig. 12, blank **28** is cut and scored to define a main back portion **80**, wings **81** defined by score lines **82**, and edge flaps **84** defined by score lines **85**. Back portion **80** is formed with spaced-apart cut-out flaps **86** hinged along score lines **87**, and the wings **81** are provided with pairs of cut-outs **88**. In addition, the wings **81** are formed with inner tongues **89**, corner tongues **90**, and edge notches **91** and **92**. As seen in Fig. 2, when the blank **28** is assembled with blanks **22** and **30** to define the interior back wall of the cabinet, the locking tongues **79** of the blanks **30** engage in the cut-outs **88** and in the cut-outs **91** and **92** as the wings **81** overlie the side panels **40** of the blanks **22**.

The main body of the cabinet **20** is completed by the back member defined by blank **26**. As seen in Fig. 13, blank **26** has a main back portion **93** from which locking tongues **94** extend laterally on each side. At one end back portion **93** is joined to an end panel **96** along score lines **97** and panel **96** is joined to an end flap **98** along score line **99**. At the opposite end of back portion **93**, score lines **102** and **103** define an end panel **105** and an end flap **106**, the end flaps **98** and **106** being provided with cut-out slots **108** and **109**, respectively. As seen in Fig. 3, when the blank **26** is assembled with the previously-described blanks, the locking tongues **94** engage in the cut-outs **63** of each blank **22** and become locked in place, the tongues **94** being formed with flexible wings **110** on each side which bend inwardly to permit passage through the cut-outs **63** and then spring open.

The cabinet **20** is completed, except for the doors, by engaging and interlocking the top and bottom end blanks **24** with the other previously assembled blanks, as shown in Figs. 4 to 9. The bottom end blank **24** has the construction shown in Fig. 14 and includes a main end panel **115** which is provided with cut-outs **116** and is joined along score lines **117** by wings **118**. Additionally, panel **115** is connected along score line **120** to an end flap **121**, and score lines **122**, **123**, and **124** define integrally connected inner panel **126**, outer panel **127** and end flap **128** which is provided with slots **130**. The top end blank **24***a* is similar to blank **24** except for certain dimensional changes and except for the presence of auxiliary cut-outs **119**. Thus blank **24***a* has a main end panel **115***a* with cut-outs **116***a* and **119**, score lines **117***a*, **120***a*, **122***a*, **123***a*, and **124***a*, wings **118***a*, panels **126***a* and **127***a* and flaps **121***a* and **128***a*, the last-named being provided with slots **130***a*.

To assemble the bottom of the cabinet, the bottom end blank **24** is bent into the form shown in Fig. 4 and the cut-outs **116** are then engaged with the tongues **71** of the panels **40** and with the tongues **89** and **90** of the blank **28**, the tongues **90** overlying the tongues **71**. The flaps **52** and **57** of the side-wall member blanks **22** are then bent inwardly, as shown in Fig. 6, and the panel **96** and end flap **98** of back member blank **26** are then engaged in the slots **108**. Finally the wings **46** are bent inwardly into end-abutting relationship and the portions **126**, **127** and **128** of the bottom end member are folded inwardly and the end flap **128** is also engaged in the slots **108** to provide the interrelationships shown in Fig. 7. To complete the bottom the flaps **98** and **128** are pushed completely into position so that the panels **96** and **127** lie in coplanar relationship to provide a flat surface to support the cabinet.

The top end member **24***a* is in similar manner engaged with the upper portion of the cabinet body. Referring to Figs. 8 and 9, for example, the member **24***a* placed in position by moving it downwardly from the position shown in Fig. 8 until the tongues **72**, **89** and **90** engage in slots **116***a*, the flaps **118***a* and **121***a* being bent upwardly as seen in Fig. 9. Then the panels **51** and end flaps **56** are bent inwardly and the tongues **72** are engaged in slots **119** formed in the main end panel **115***a* of the member **24***a*. The wings **45** are then bent inwardly into end-abutting relationship and the flaps **106** and **128***a* are engaged in the slots **65** in the manner shown in Fig. 7 in connection with the bottom end panel. The completed top of the cabinet is shown in Fig. 19.

There is thus provided a cabinet which is formed solely from foldable sheet material such as corrugated fiberboard but which, due to the interrelationship of parts, is sturdy and load-sustaining and has extremely high dimensional stability. It will be seen that the several parts reinforce each other and particularly in the case of the top and bottom of the cabinet, vertically-extending panel portions held rigidly in place, such as the parts shown in detail in Fig. 6 and the corresponding parts at the top of the cabinet impart to the cabinet high load-bearing characteristics.

As previously indicated, an important application of the cabinet of this invention as a toy is the provision of a half-scale toy refrigerator. For this purpose, doors such as shown in Fig. 19 are hingedly connected to the body of the cabinet. Referring to Figs. 15–17, there is shown the interengagement of blanks to form the main outer door. The blank **140** has a main body panel **142**, end flaps **144** joined to it along double score lines **145**, a side flap **147** joined along double score line **148** and a side flap **150** joined along double score line **151**. The several parts of the blank **140** are formed with apertures **155** for reception of screws **156** with cooperating nuts **157** to hold the parts together as will be described below. The panel **142** is also formed with a cut-out **158** to receive a handle **159**. Cooperating with blank **140** is a blank

160 having a main body portion 162 and an end flap 163 flexibly connected to it along a score line 164, the blank 160 being provided with apertures 165. To assemble the door, the flaps 147 and 163 are interconnected by screws 156 and nuts 157 passing through apertures 155 and 165, the handle 159 having previously been placed in position, a hinge bar 168 is placed along score line 151, the flap 150 is then folded inwardly, followed by the flaps 144 and the body portion 162 is then bent on the score line 164 over the inturned flaps as shown in Fig. 17. Finally, the parts are interconnected by passing the screws 156 through the cooperating apertures and engaging them with the nuts 157. The ends of the hinge bar 168 which extend beyond the door are engaged in aperture 170 in panel 115 and aperture 170*a* in panel 115*a*, it being understood that this engagement is effected while the top end member 14*a* is being connected with the body portion of the cabinet.

To simulate a modern refrigerator with a top freezer compartment, an inner door 172 is also advantageously provided from a single blank which has a main body portion 174, end flaps 175, a lower side flap 176 and a top side flap 179, the several parts being provided with apertures 180 to receive screws 156 and the body portion 174 being formed with a cut-out 181 to receive a handle 182 similar to handle 159. As seen in Figs. 18 and 18*a*, the several flaps of the door 172 are folded inwardly to interlock with a hinge bar 185 and interconnected by screws and nuts passing through the apertures 180. The door is then mounted in the cabinet by passing the free ends of hinge bar 185 through apertures 186 formed in side panels 40 of side-wall member blanks 22. The door 172 is mounted during the assembly of the panels 40 with the shelves.

It will be understood that various designs and indicia may be printed upon the body of the cabinet, the shelves, and the doors for example, to simulate the trim and design features of conventional full-size refrigerators to add further to the life-like appearance of the toy. It will also be understood that various changes and modifications may be made in the embodiments of the invention described and illustrated without departing from the scope of the invention as defined in the appended claims. It is intended, therefore, that all matter contained in the foregoing description and shown in the drawing shall be interpreted as illustrative only and not as limitative of the invention.

What I claim and desire to secure by Letters Patent is:

1. A cabinet formed from flexible sheet material and comprising a pair of identical side wall members each defining a side wall panel portion, a first back member in interlocking engagement with the back edge of the side wall panel portion of said side wall members, said side wall members having retroverted panel portions extending interiorly of the enclosure defined by said side wall panel portions and said first back member lying substantially parallel to said side wall panel portions, an interior second back member in interlocking engagement with said retroverted panel portions, and top and bottom end members each having panel portions interlocking respectively with the top and bottom edges of said retroverted portions, said first back member having flaps at its top and bottom ends, and said top and bottom members having flaps extending from said panel portions, said flaps of the end members and said flaps of the first back member being folded inwardly of said enclosure to meet to define the top and bottom end surfaces of the cabinet and having vertically-extending end tongue portions bearing against the panel portions of said end members, whereby the panel portion of each end member is parallel to and spaced inwardly of the adjacent cabinet end surface with said end tongue portions extending substantially at right angles to said last-named panel portion and the adjacent end surface.

2. A cabinet formed from flexible sheet material and comprising a pair of identical side wall members each defining a side wall panel portion, a first back member in interlocking engagement with the back edge of the side wall panel portion of said side wall members, said side wall members having retroverted panel portions extending interiorly of the enclosure defined by said side wall panel portions and said first back member lying substantially parallel to said side wall panel portions, an interior second back member in interlocking engagement with said retroverted panel portions, and top and bottom end members each having panel portions interlocking respectively with the top and bottom edges of said retroverted portions, said first back member having flaps at its top and bottom ends, and said top and bottom members having flaps extending from said panel portions, said flaps of the end members and said flaps of the first back member being folded inwardly of said enclosure to meet to define the top and bottom end surfaces of the cabinet and having vertically-extending end tongue portions bearing against the panel portions of said end members, whereby the panel portion of each end member is parallel to and spaced inwardly of the adjacent cabinet end surface with said end tongue portions extending substantially at right angles to said last-named panel portion and the adjacent end surface, and a plurality of shelves in spaced apart relationship engaged with said retroverted panel portions in parallel relationship with the panel portions of the top and bottom members.

3. A cabinet formed from flexible sheet material and comprising a pair of identical side wall members each defining a side wall panel portion, a first back member in interlocking engagement with the back edge of the side wall panel portion of said side wall members, said side wall members having retroverted panel portions extending interiorly of the enclosure defined by said side wall panel portions and said first back member lying substantially parallel to said side wall panel portions, an interior second back member in interlocking engagement with said retroverted panel portions, and top and bottom end members each having panel portions interlocking respectively with the top and bottom edges of said retroverted portions, said first back member having flaps at its top and bottom ends, and said top and bottom members having flaps extending from said panel portions, said flaps of the end members and said flaps of the first back member being folded inwardly of said enclosure to meet to define the top and bottom end surfaces of the cabinet and having vertically-extending end tongue portions bearing against the panel portions of said end members, whereby the panel portion of each end member is parallel to and spaced inwardly of the adjacent cabinet end surface with said end tongue portions extending substantially at right angles to said last-named panel portion and the adjacent end surface, and a plurality of shelves in spaced apart relationship engaged with said retroverted panel portions in parallel relationship with the panel portions of the top and bottom members, and a door hingedly connected to said top and bottom members.

4. A cabinet formed from flexible sheet material and comprising a pair of identical side wall members each defining a side wall panel portion having a flap at its upper end, a first back member in interlocking engagement with the back edge of the side wall panel portion of said side wall members, said side wall members having retroverted panel portions extending interiorly of the enclosure defined by said side wall panel portions and said first back member lying substantially parallel to said side wall panel portions, an interior second back member in interlocking engagement with said retroverted panel portions, and top and bottom end members each having panel portions interlocking respectively with the top and bottom edges of said retroverted portions, said first back member having flaps at its top and bottom ends, and said top and

bottom members having flaps extending from said panel portions, said flaps on the side wall panel portions being folded inwardly of said enclosure and bearing vertically against the panel portions of said end members, said flaps of the end members and said flaps of the first back member being folded inwardly of said enclosure to meet to define the top and bottom end surfaces of the cabinet and having vertically-extending end tongue portions engaging with the flaps of the side wall panel portions and bearing against the panel portions of said end members, whereby the panel portion of each end member is parallel

to and spaced inwardly of the adjacent cabinet end surface with said end tongue portions extending substantially at right angles to said last-named panel portion and the adjacent end surface.

References Cited in the file of this patent

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