United States Patent

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[72] Inventors **Harry Stone**
Forest Hills;
Sol Stone, Hewlett, N.Y.

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[73] Assignee **Roseth Corporation**

[54] **KNOCKDOWN CHEST**
7 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **312/258,** 312/259
[51] **Int. Cl.** **A47b 43/00** A47b 47/00
[50] **Field of Search** ..... 312/257 265, 198—203

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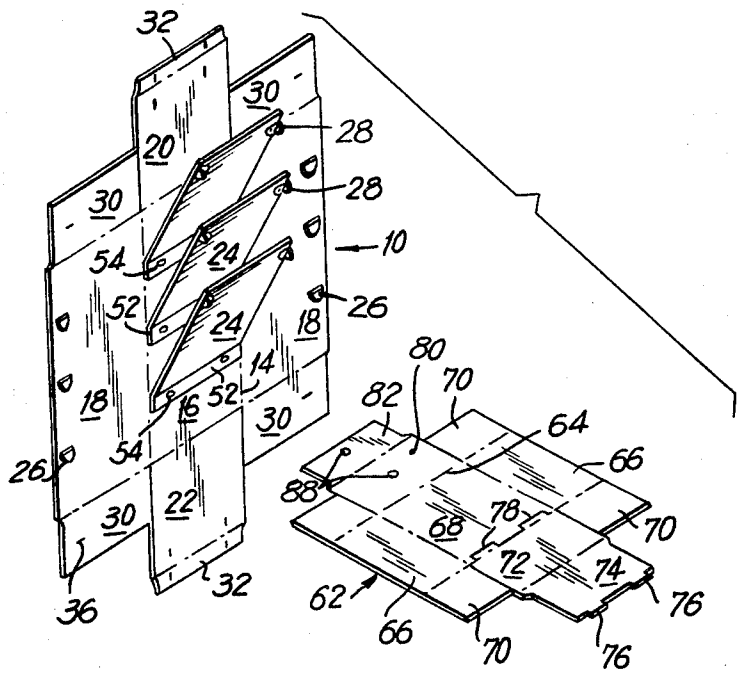
Primary Examiner—Jordan Franklin
Assistant Examiner—Geo. V. Larkin
Attorney—Blum, Moscovitz, Friedman & Kaplan

ABSTRACT: A knockdown chest capable of being transported in a relatively flat condition while at the same time capable of being set up to form a chest having slidable drawers. The chest includes a main body of substantially rigid sheet material formed with score lines enabling this body to be folded to form a back wall, opposed sidewalls, and top and bottom walls of the chest. A plurality of flaps are fixed to the back wall and swingably extend forwardly therefrom to be supported in horizontal planes, respectively, by the sidewalls, so as to form supports on which the several drawers are respectively slidable. These drawers themselves are in the form of knockdown units capable of assuming a flat condition while having score lines enabling them to be folded into the drawers which are slidable on the flaps. These drawers include a lowermost drawer which is slidable on the bottom wall beneath the lowest flap.



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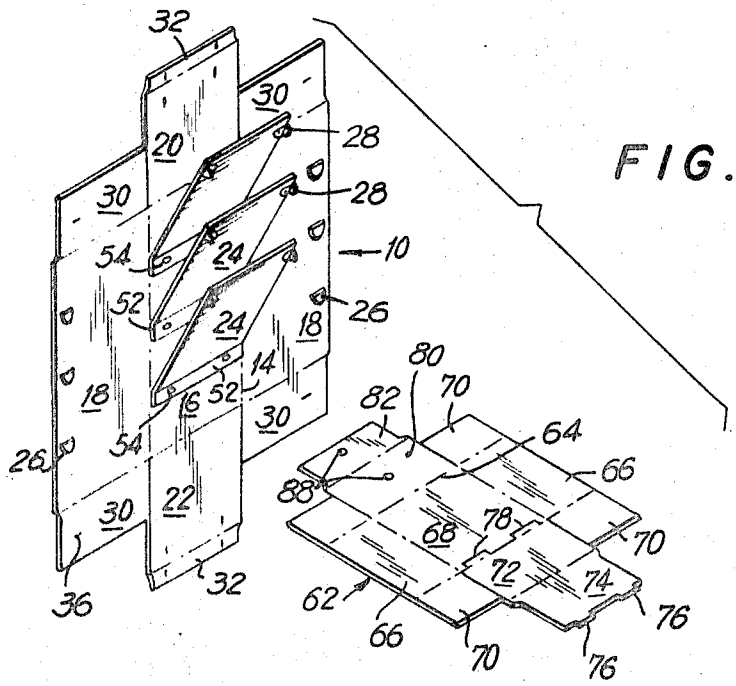

FIG. 1

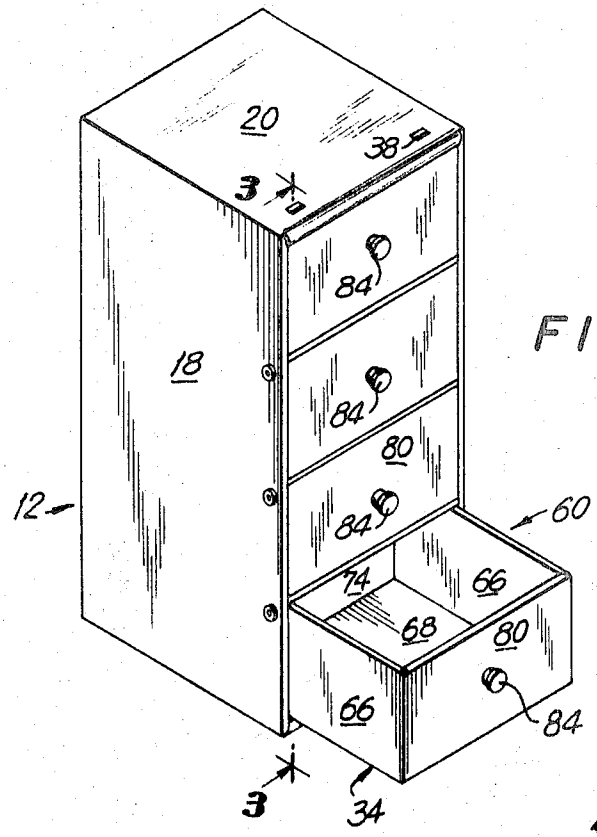

FIG. 2

INVENTORS
HARRY STONE
SOL STONE

BY

Blum, Moscovitz, Friedman & Kaplan
ATTORNEYS

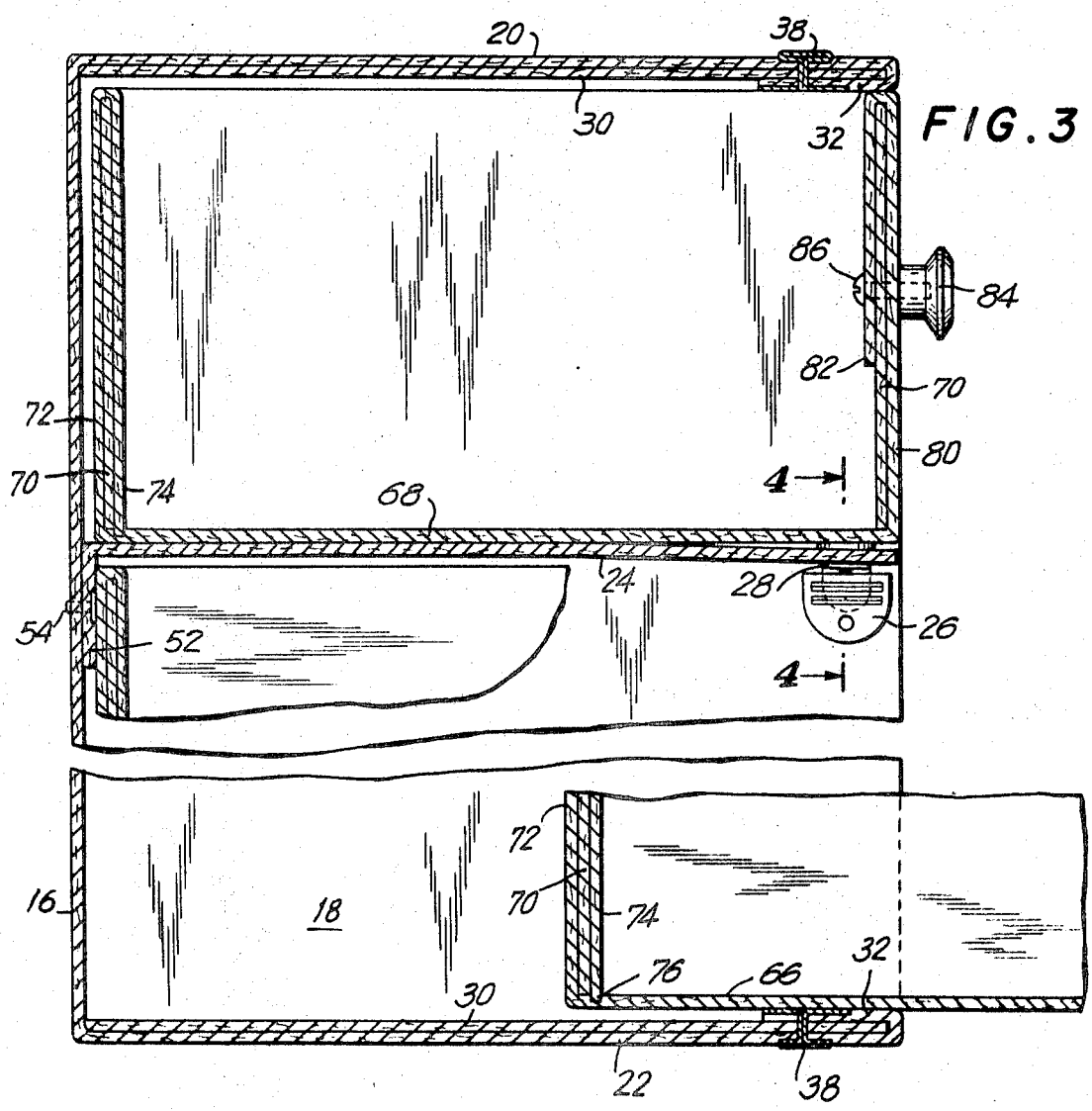

FIG. 3

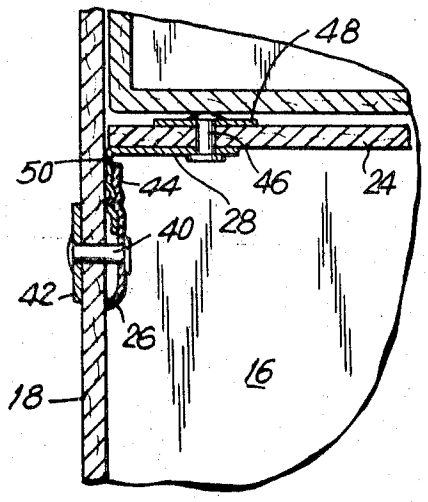

FIG. 4

INVENTORS
HARRY STONE
SOL STONE

BY

Blum, Moscovitz, Friedman & Kaplan
ATTORNEYS

KNOCKDOWN CHEST

BACKGROUND OF THE INVENTION

The present invention relates to knockdown chests.

Thus, the present invention relates to a knockdown article of furniture capable of being set up to form a chest which has a plurality of drawers which are slidable between open and closed positions.

Structures of this type are desirable because they can be shipped in relatively flat condition occupying only an extremely small amount of space and capable of being very conveniently handled. On the other hand, when they are to be used these structures are set up to form an article of furniture such as a chest of drawers.

However, the known structures of this type are exceedingly complex. They require very special hardware and are difficult to set up as well as to knock down. Furthermore, they do not always remain reliably in their setup condition and do not efficiently support drawers for sliding movement particularly when the drawers are filled with relatively heavy objects.

SUMMARY OF THE INVENTION

It is accordingly a primary object of the present invention to provide a structure of the above general type which will avoid the above drawbacks.

In particular, it is an object of the present invention to provide a relatively inexpensive structure capable of assuming a knocked down condition where it is relatively flat so as to be conveniently handled and shipped while occupying a small amount of space.

In addition, it is an object of the present invention to provide a structure of this type which can be readily set up, without the use of any special tools, in such a way as to form a chest having drawers which are easily slidable and at the same time reliably supported even in the case where they carry relatively heavy loads in their interiors.

It is also an object of the present invention to provide a construction of this type which requires only very simple hardware and in which fastening components are permanently attached with parts of the foldable components. Furthermore, it is an object of the present invention to provide a construction which includes only one foldable unit in addition to the several drawers themselves, so that with a relatively small number of components it becomes possible to set up the structure of the invention.

Furthermore, it is an object of the invention to provide a unit of this type which except for the knobs by which the drawers are pulled requires only one type of fastening clip to be used throughout the entire structure.

In accordance with the invention a main body of sheet material which is substantially rigid is provided with score lines which enable this body to be folded so as to form a back wall, a pair of opposed sidewalls, and top and bottom walls of the chest. A plurality of drawer-supporting flaps are pivotally or hingedly connected at rear edges to the back wall and extend forwardly therefrom between the sidewalls. At their front regions these flaps are supported by suitable clips which are received in suitable brackets of the sidewalls so as to be maintained in horizontal positions. The several drawers are slidable on the flaps and are themselves in the form of knockdown units made of substantially rigid sheet material with score lines enabling these units to be folded into drawers, and a knob which is connected to each drawer to enable the latter to be pulled also functions to hold the drawer at least at its front region in an operative condition.

BRIEF DESCRIPTION OF DRAWINGS

The invention is illustrated by way of example in the accompanying drawings which form part of this application and in which:

FIG. 1 illustrates the main body of sheet material as well as an additional body of sheet material which forms a drawer unit;

FIG. 2 is a perspective illustration of the structure set up in its condition of use;

FIG. 3 is a fragmentary sectional elevation taken along line 3–3 of FIG. 2 in the direction of the arrows; and

FIG. 4 is a fragmentary transverse section taken along line 4–4 of FIG. 3 in the direction of the arrows.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to FIG. 1, the structure illustrated therein includes a main body 10 of a substantially rigid sheet material such as a heavy cardboard. This sheet material is provided with score lines indicated in dot-dash lines in FIG. 1. Along these score lines it is possible to fold the body 10 so as to form from the latter an outer frame for the drawers of the chest 12 which is shown in FIG. 2. Thus, the score lines 14 enable the body of sheet material 10 to be folded so as to form a back wall 16, a pair of opposed sidewalls 18 and top and bottom walls 20 and 22, respectively. A plurality of flaps 24 are hingedly connected to the rear wall 16 to project forwardly therefrom into positions where they are supported horizontally by brackets 26 of the sidewalls 18. The flaps 24 are respectively provided in the region of their front edges at their opposed sides with springy clips 28 to be received in the brackets 26. The clips 28 and the brackets 26 form a releasable connecting means for releasably connecting the flaps 24 at the regions of their front edges with the sidewalls 18 so that the latter support the flaps in their horizontal parallel positions while the flaps maintain the sidewalls extending forwardly from the rear wall 16. It will be noted that each of the sidewalls is provided with a pair of end flaps 30. The top and bottom walls 20 and 22 respectively project beyond the end flaps 30 so as to terminate in the free end portions 32. In order to fold the body 10 into a condition where it will form the outer frame of the chest 12 to support the drawers 34 thereof, the sidewalls 18 are folded along the lines 14 forwardly from the back wall 16, and then the flaps 30 are folded perpendicularly with respect to the sidewalls toward each other so that the upper flaps 30 become situated beneath the top wall 20 while the lower flaps 30 become situated above the lower wall 22. Then the portions 32 of the upper and lower walls are folded around the front edges of the flaps 30 which engage the upper and lower walls in the manner described above. All of these walls and flaps are formed with slits 36 which become aligned with each other. As may be seen from FIG. 3 in particular, spreadable fastening pins 38 extend through these slits to hold the parts assembled. Thus, these members 38 are in the form of relatively narrow easily bendable metal clips which are extended through the slits so that outer heads of the clips engage exterior surfaces while inner ends can be bent away from each other against the inner surface to form a structure as shown in FIG. 3.

As may be seen from FIG. 4, the several brackets 26 are fixed by pins or rivets 40 to the sidewalls 18 with the latter having exterior reinforcing plates or washers 42 engaging the heads of the pins or rivets. The brackets 26 have upper free end portions 44 which are springy and horizontally corrugated, as indicated most clearly in FIG. 4 and as is also apparent from FIG. 3.

Each of the flaps 24 has a substantially L-shaped springy clip 28 which is fixed to each flap by a rivet or other suitable fastener 46 engaging with a head end thereof a washer 48 on the top surface of each flap 24. These clips 28 have downwardly directed horizontally corrugated free springy portions 50 which snap into the space between each sidewall 18 and the portion 44 of each bracket 26 in the manner shown in FIG. 4 so as to be releaseably held by the matching corrugated intermeshing configuration of the portions 50 and 44 of the clips 28 and brackets 26, respectively. Thus, with this construction while each flap 24 will be reliably held in the horizontal attitude projecting forwardly from the rear wall 16, nevertheless when the drawers are removed it is possible to easily displace the flaps 24 to their positions extending along-

side the wall **16** and overlapping each other to provide a relatively flat assembly **10**.

The several flaps **24** terminate at their rear ends in flanges **52** fastened by any suitable pins or rivets **54** directly to the rear wall **16** in the manner shown in FIGS. **1** and **3**.

Each drawer **60** is capable of being folded from a flat blank **62** illustrated in FIG. **1**. This blank is made of a relatively heavy substantially rigid sheet material such as a suitable cardboard, in the same way as the frame **10**, and the blank **62** is also provided with score lines, illustrated by the dot-dash lines **64** in FIG. **1**, so that by folding along these lines in the manner described below it is possible to convert each flat blank **62** into a drawer **60**.

Each of the drawers has a pair of opposed sidewalls **66** which can be turned upwardly from the bottom wall **68**. The sidewalls **66** each terminate in a pair of end flaps **70** which are folded in to extend along the front and rear edges of the bottom wall **68**.

Then the rear wall **72** is folded up so that the tabs **70** are located in front of and engaged by the rear wall. This rear wall **72** has an extension **74** connected to the rear wall **72** by a suitable fold or score line extending along the upper edge of the rear wall **72**, and this extension **74** is folded down so as to extend in front of the flaps **70**. At its free edge the extension **74** has a pair of tongues **76**, and along its rear edge the bottom wall **68** is formed with a pair of indentations **78** into which the projections **76** extend with a fairly tight friction fit and with a snapping action, so that through this expedient the rear wall structure of the assembled drawer **60** is maintained in its assembled condition.

Similar operations are performed in connection with the front of the drawer **60**. Thus, the flaps **70** at the front ends of the sidewall **66** are also bent or folded inwardly so as to extend along the front edge of the bottom wall **68**. Now the front wall **80** is folded upwardly from the bottom wall **68**. This front wall **80** also has an extension **82** connected to the top edge of the front wall **80** along a score line which enables the extension **82** to be folded around the front flaps **70** engaging the rearwardly directed surfaces thereof, so that in this way the sidewalls **66** will be locked by the front wall in their upright positions.

As is apparent particularly from the upper right portion of FIG. **3**, each drawer has a knob **84** releaseably fixed to the drawer by a screw **86** which extends into a threaded bore extending inwardly from the rear surface of each knob **84**. The front wall **80** and its extension **82** are formed with openings **88** which become aligned with each other so that the shank of the screw **86** can pass therethrough in order to be received in the threaded bore of the knob **84**. This screw **86** has at its rear or inner end, as viewed in FIG. **3**, a head greater than the openings **88**.

It will be seen that with this construction not only do the screw **86** and knob **84** serve to provide each drawer with a structure for pulling the drawer open in a very convenient manner, but in addition the knob **84** and screw **86** serve to maintain the front wall **80** and the extension **82** in their folded condition with the front flaps **70** situated therebetween so that in this way the knob **84** and screw **86** also serve to maintain the drawer in its assembled condition at the region of its front end. Furthermore, it is apparent that it is apparent that it is an exceedingly simple matter to disassemble the drawer so that it can again assume the flat condition shown in FIG. **1**. This requires only removal of the knob **84** and the screw **86**, and then the entire drawer can be returned to the condition for the blank **62** in FIG. **1**.

It is therefore apparent that with the structure of the invention the entire assembly can be shipped in a flat condition occupying only a small amount of space. At the same time it is a simple matter to set the chest up for use as well as to knock it down again for storing, for example. It is to be noted, furthermore, that no special tools are required in connection with these operations. The simple bendable pins **38** can be manipulated very readily by hand, and by holding the head of the screw **86** stationary it is possible to turn the knob **84** in the manner of a nut so as to place the knob **84** and the screw **86** in their operative positions. The knob **84** can be made of any suitable plastic or simply from wood, for example. The springy tongues **50** can be readily snapped into and out of their engagement with the springy portions **44** of the brackets **26**. This also is an operation which is performed completely by hand.

Naturally the structure shown in the drawings can be made in any convenient size. For example, the walls **18** may have a height situating the top wall **20** approximately at the elevation of the waist of an adult, or the parts may be manufactured on a smaller scale for use by children.

We claim:

1. A knockdown chest comprising a body of substantially rigid sheet material having score lines along which said body is folded to define the back wall, sidewalls, and top and bottom walls of a chest, a plurality of flaps hingedly connected to said back wall and extending between said sidewalls for forming supports on which drawers are slidable, releasable connecting means located at said sidewalls and at forward regions of said flaps for releasably connecting the latter to said sidewalls for supporting said flaps on said sidewalls while maintaining said sidewalls in parallel positions extending forwardly from said back wall, and a plurality of drawer units respectively slidable on said flaps and including a lowermost unit slidable on said bottom wall between the latter and the next-higher flap.

2. The combination of claim **1** and wherein said flaps are made of the same sheet material as said body.

3. The combination of claim **2** and wherein said drawer units are also each of a knockdown construction and composed of a body of sheet material formed with score lines by which the latter body is folded to form a drawer.

4. The combination of claim **3** and wherein each of said flaps has a front free edge and carries a pair of positioning clips extending downwardly from opposed side edges of each flap in the region of its front free edge, and said sidewalls carrying for each flap a pair of brackets for respectively receiving said positioning clips to situate said flaps in horizontal planes supporting drawers thereon, said clips and brackets forming said releasable connecting means.

5. The combination of claim **4** and wherein said brackets are fixed to said sidewalls and respectively have upwardly directed substantially corrugated springy portions, said clips having downwardly directed corresponding springy portions to snap between said brackets and said sidewalls.

6. The combination of claim **1** and wherein said sidewalls respectively terminate in top and bottom flaps which are folded against said top and bottom walls with the latter having front portions extending around said flaps, and said flaps being joined to said top and bottom walls and said front portions thereof with pin-clips which extend through aligned slits formed in said flaps and said top and bottom walls.

7. The combination of claim **1** and wherein each drawer unit includes a body of sheet material formed with score lines along which said sheet material is folded to form bottom and sidewalls of each drawer unit as well as front and rear walls thereof, said sidewalls respectively having flaps situated against said front and rear walls and said front and rear walls having elongated free end portions folded around said flaps and extending into the interior of said drawer unit, and a knob fixed to the front wall and holding its inwardly folded portion against an outer wall portion while fixing front flaps of said sidewalls into position with respect to said front wall, and said rear wall terminating in a pair of projections, said bottom wall having at the region of said rear wall indentations for receiving said projections so that the latter snap into said indentations for holding rear flaps of said sidewalls in position with said rear wall itself being held in position extending perpendicularly from said bottom wall.