# United States Patent

[11] 3,583,780


[72] Inventor **Irving L. Berkowitz**
**Binghamton, N.Y.**



[21] Appl. No. **847,217**
[22] Filed **Aug. 4, 1969**
[45] Patented **June 8, 1971**
[73] Assignee **Integral Cubics Inc.**
**Long Island City, N.Y.**


[54] **PANELED FURNITURE ASSEMBLY**
**17 Claims, 11 Drawing Figs.**


[52] **U.S. Cl.** ..... **312/108**
[51] **Int. Cl.** ..... **A47b 87/00**
[50] **Field of Search** ..... 312/108



[56] **References Cited**
UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,962,334 | 11/1960 | Dutmers | 312/108 |
| 3,287,075 | 11/1966 | Batke et al. | 312/108 |



*Primary Examiner*—Patrick D. Lawson
*Attorney*—J. B. Felshin



**ABSTRACT:** This device comprises a number of panels that can be assembled in various ways without screws or other fasteners to provide a piece of furniture, boxlike in shape that can be stacked. In one form of the invention it is provided with a door. It can be used as a storage cabinet for liquor, records, books, towels, linen or other articles or to enclose a radio speaker. A table top can be placed on two of these devices to make a table.

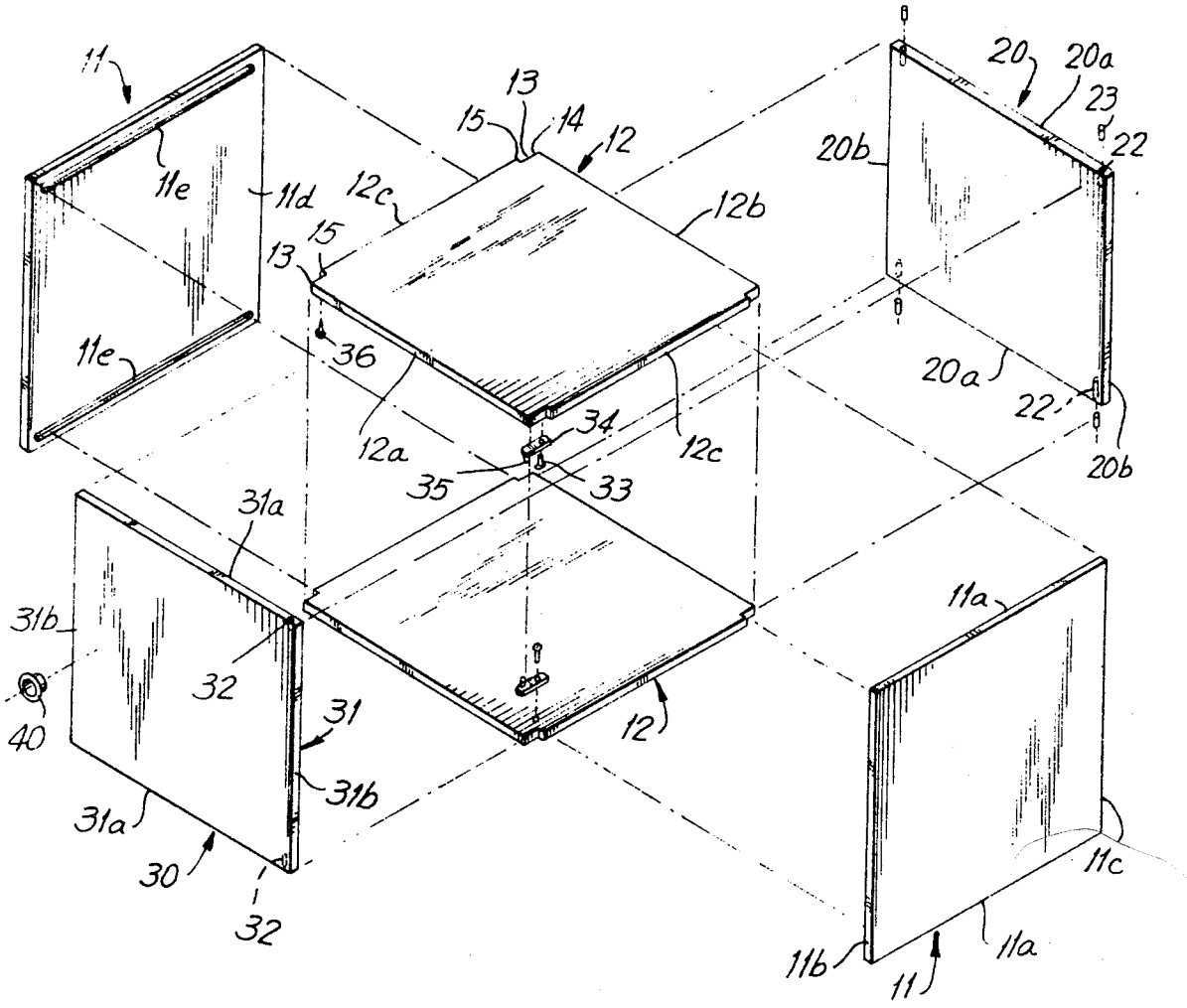



FIG. 1

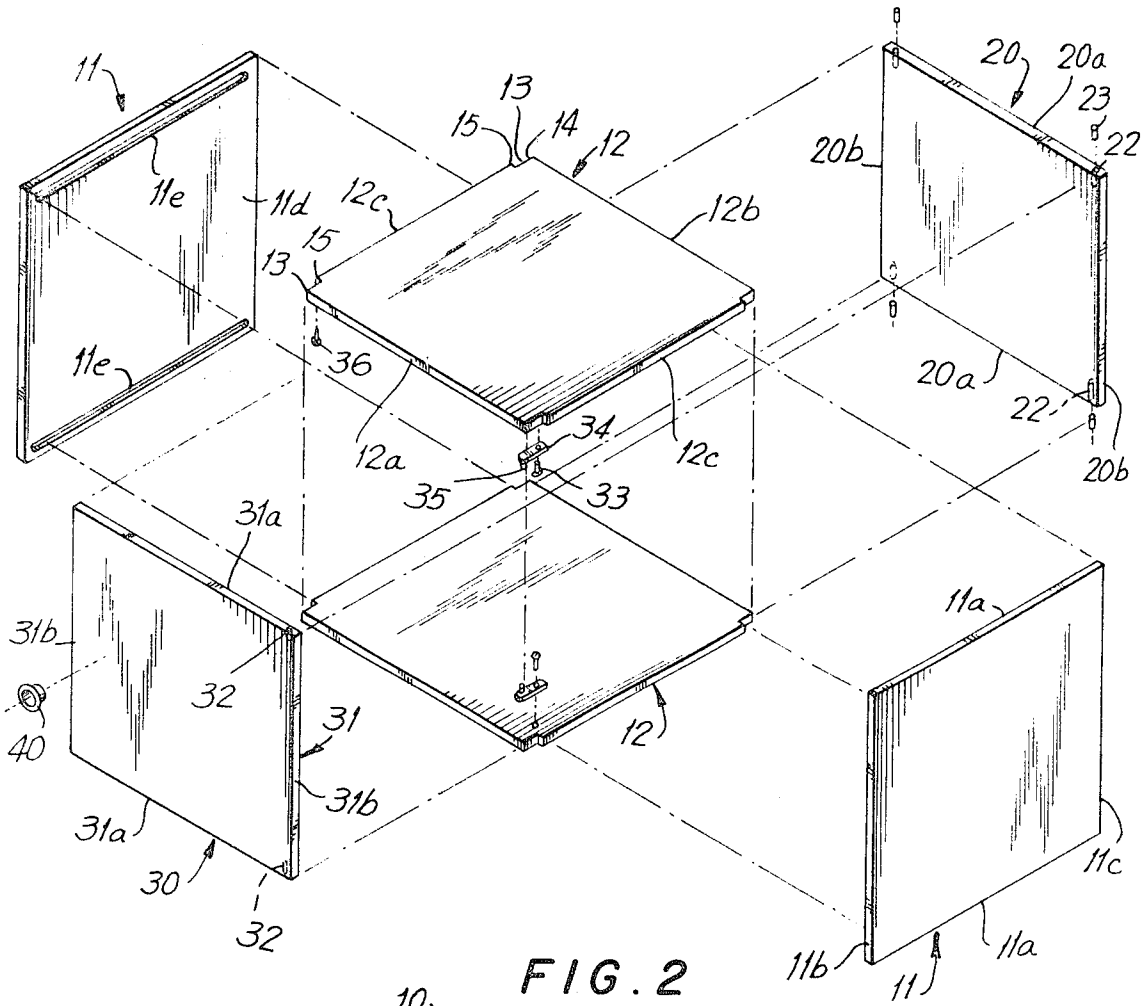
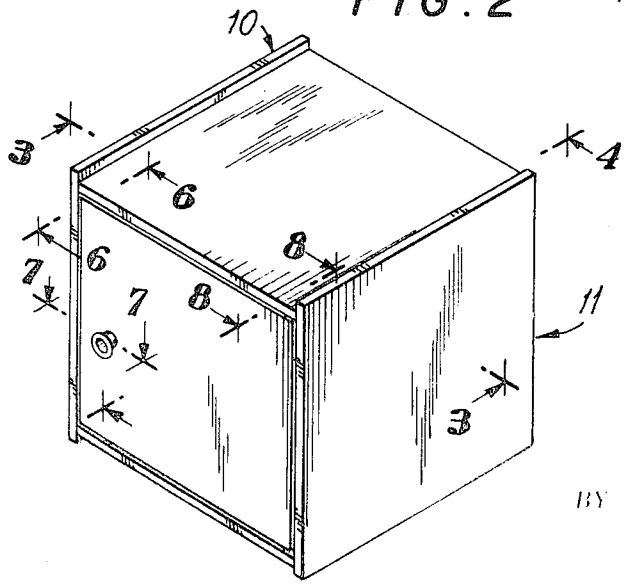



FIG. 2




INVENTOR.
IRVING L. BERKOWITZ

BY

J. B. Feldstein
ATTORNEY

FIG. 3

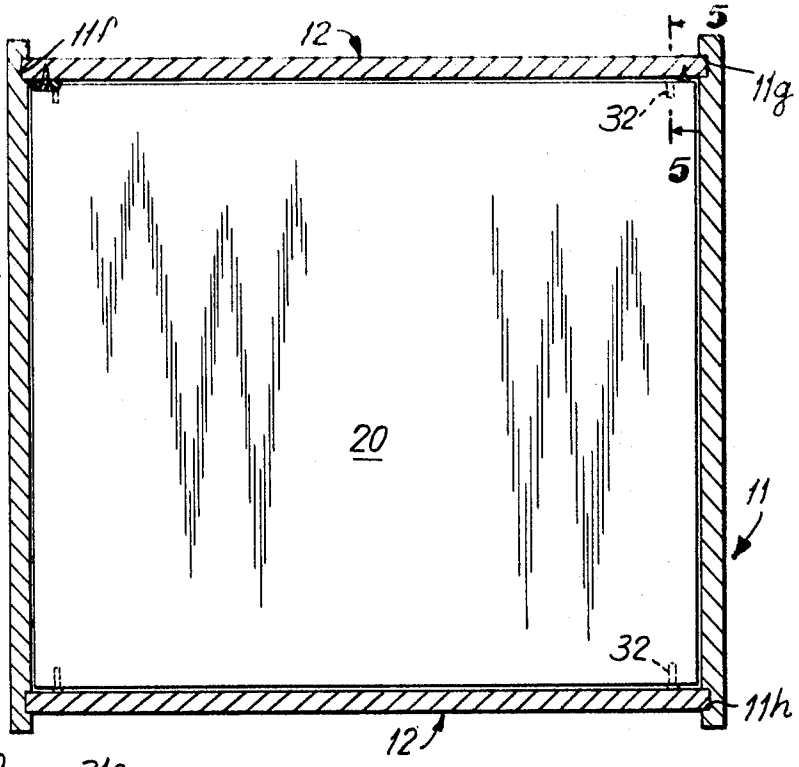



FIG. 5

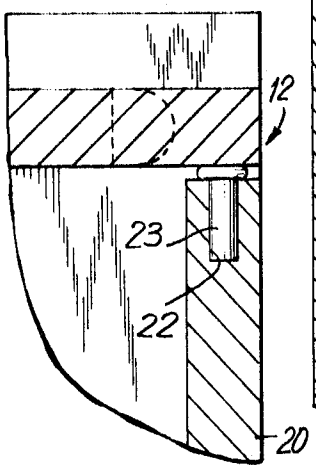



FIG. 4

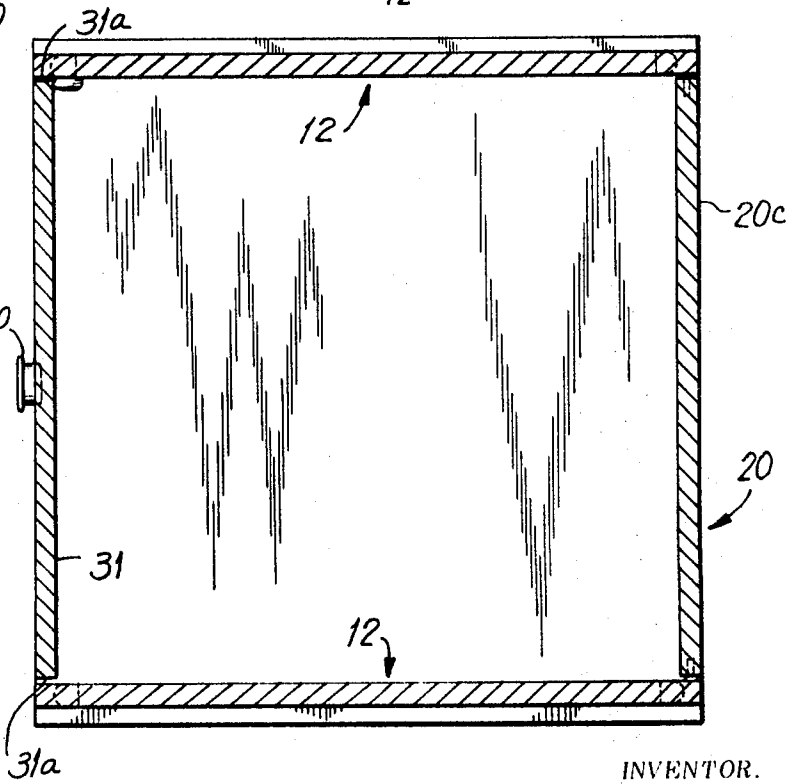
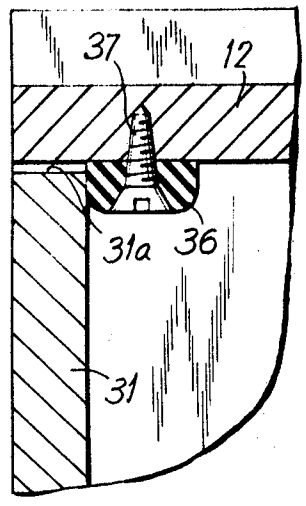



FIG. 6




INVENTOR.
IRVING L. BERKOWITZ

BY

J. B. Feeley

ATTORNEY

FIG. 7

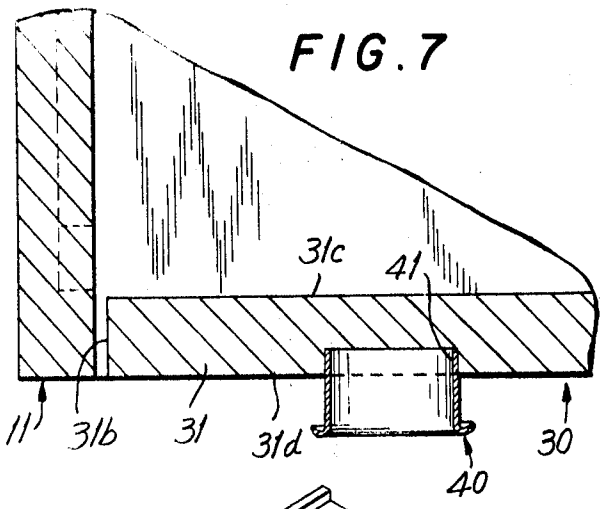



FIG. 8

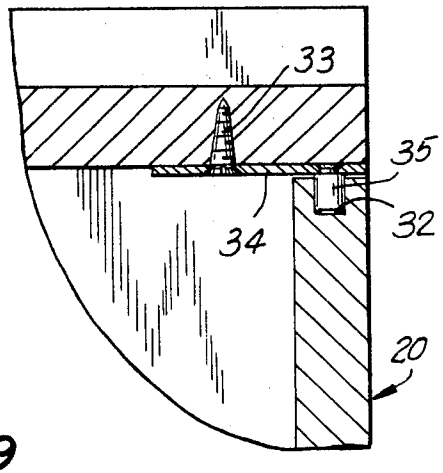



FIG. 9

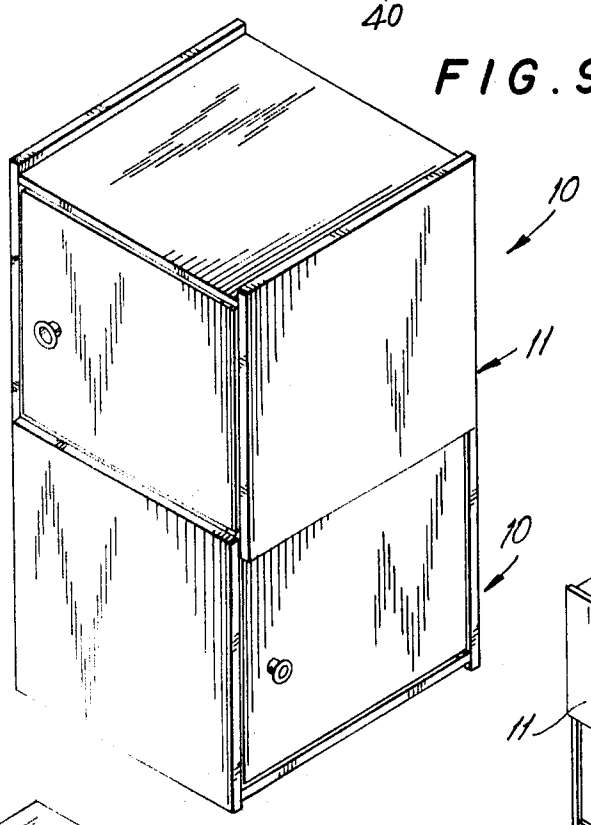



FIG. 10

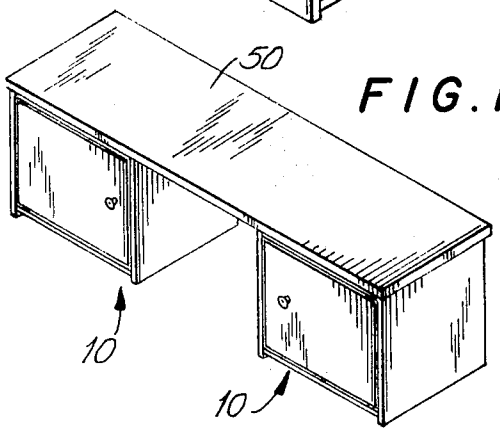
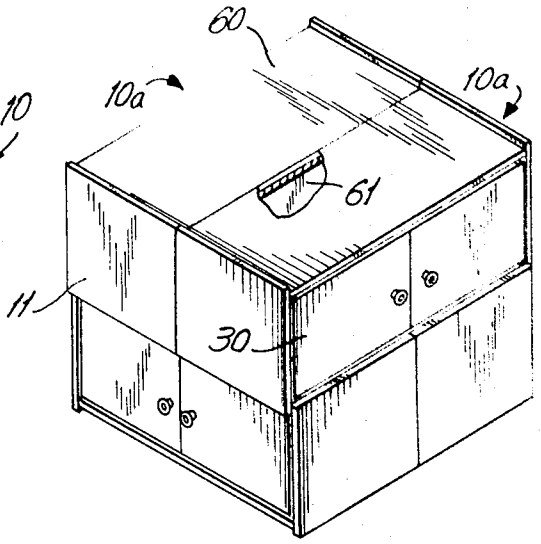



FIG. 11




INVENTOR.
IRVING L. BERKOWITZ

BY

J. B. Feeahin
ATTORNEY

# PANELED FURNITURE ASSEMBLY

## BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to assembled furniture.

2. Description of the Prior Art

Knockdown furniture is generally known.

## SUMMARY OF THE INVENTION

An object of this invention is to provide an assembled piece of furniture of the character described comprising a pair of parallel side panels having means to receive the ends of a pair of parallel top and bottom panels and a single panel disposed between said side panels, and between said top and bottom panels, and having means resiliently pressing in opposite directions against the top and bottom panels respectively, to cause said ends of the top and bottom panels to press against the receiving means on said side panels in opposite directions, respectively, whereby to retain all said panels in assembly relation.

Yet another object of this invention is to provide a piece of furniture of the character described in which the side panels are similar, and the top and bottom panels are similar and in which the length of said panels from front to rear is similar and equal to the distance which separates the side panels in the assembled piece of furniture.

Another object of this invention is to provide an assembled piece of furniture of the character described, in which the means on the single panel to press against the top and bottom panels, comprises resilient means fixed to the upper and lower ends of said single panel.

Still another object of this invention is to provide an assembled piece of furniture of the character described, provided with a door to close said piece of furniture.

Yet another object of this invention is to provide a piece of furniture of the character described in which the single panel can be placed in various planes at right angles to said top, bottom and side panels.

A further object of this invention is to provide an assembled piece of furniture of the character described that can be stacked, one on top of another, with a side of the upper piece at the front and rear of the lower piece, and with said upper piece disposed between extension on the lower piece and having extensions disposed on opposite sides of the lower piece.

A still further object of this invention is to provide an assembled piece of furniture of the character described, which is substantially twice as wide as it is deep, and can be stacked by placing two of said pieces on two of said lower pieces at right angles thereto.

Yet a further object of this invention is to provide a strong, compact and durable construction of the character described which shall be relatively inexpensive to manufacture, easy to set up and disassemble, which may be compactly shipped, which shall have a great variety of uses, which can be made of a variety of materials and finished in a variety of colors, and which shall yet be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an exploded perspective view of a piece of furniture embodying the invention;

FIG. 2 is a perspective view of the assembled piece of furniture;

FIG. 3 is a cross-sectional view taken on line 3–3 of FIG. 2;

FIG. 4 is a cross-sectional view taken on line 4–4 of FIG. 2;



FIG. 5 is a partial cross-sectional view taken on line 5–5 of FIG. 3;

FIG. 6 is a partial cross-sectional view taken on line 6–6 of FIG. 2;

FIG. 7 is a partial cross-sectional view taken on line 7–7 of FIG. 2;

FIG. 8 is a partial cross-sectional view taken on line 8–8 of FIG. 2;

FIG. 9 is a perspective view of a pair of pieces of furniture shown in FIG. 2, stacked one on the other;

FIG. 10 is a perspective view showing a pair of spaced-apart pieces of furniture shown in FIG. 2, with a table top thereon; and

FIG. 11 is a perspective view illustrating two pairs of pieces of furniture embodying a modified form of the invention, with one pair stacked on another pair.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now in detail to the drawing and particularly to FIGS. 1 to 9, 10 designates a piece of furniture embodying the invention. The same comprises a pair of similar, symmetrically disposed side panels 11 square in shape, each having upper and lower edges 11*a*, a front edge 11*b* and a rear edge 11*c*. Said panels have inner faces 11*d*. Said panels are formed at their inner faces 11*d* with horizontal grooves 11*e* extending from front to rear and equally spaced from the edges 11*a* and terminating short of the front and rear edges 11*b*, 11*c*. Said grooves are of equal depth throughout. The width of the grooves is same as the thickness of the panels. The ends of the grooves may be round because of the tool used to make the grooves. The grooves may be spaced from the adjacent upper and lower edges by a distance equal to the width of the grooves.

Said piece of furniture 10 further comprises upper and lower similar panels 12 of same thickness as panels 11 and having front edges 12*a* parallel to rear edges 12*b* and parallel sides edges 12*c*. Said panels 12 have front rectangular corner notches 13 similar to and symmetrical with rear corner notches 13, thus forming abutment edges 14 running from front to rear and intersecting edges 15 at right angles thereto. Thus the length of edges 12*c* between edges 15 is less than the distance between edges 12*a*, 12*b*. the length of edges 15 is equal to the depth of grooves 11*e*. The length of edges 12*c* is such that said edge portions can be received in grooves 11*e* and contact the inner surfaces of the grooves. The length of edges 12*c* is less than the length of grooves 11*e* to permit insertion. Edges 14 contact the inner surfaces of panels 11. The distance between the edges 14 on one side of the panel 12 and the edges 14 on the other side of said panel is equal to the distance from edge 12*a* to edge 12*b* of said panel. Thus, the distance between the inner surfaces of panels 11 is equal to the depth of the panels 11, 12 from front to rear, when edge portions 12*c* are fully inserted into grooves 11*c* and contact the bottoms 11*f* of the grooves, and shoulders 14 contact the inner surfaces 11*d* of said panels 11.

Said panels 11, 12 are held in assembled condition by means of a rear panel 20 disposed vertically and having parallel upper and lower edges 20*a* and parallel side edges 20*b*. Said panel 20 may be of the same thickness as panels 11, 12. The width of panel 20 between edges 20*b* is substantially one-eighth inch less than the width of edges 12*a*, 12*b* between adjacent edges 14 to provide a clearance. The height of panel 20 between edges 20*a* is about one-eighth inch less than the distance between the inner surfaces of the panels 12, and hence between the two grooves 11*e* of one of the panels 11. Said rear panel 20 may fit between panels 11 as well as between panels 12. The rear surface 20*c* of panel 20 may be flush with rear edges 12*b* of panels 12 and with rear edges 11*c* of panels 11.

Said panel 20 is formed, adjacent the ends of its upper and lower edges 20*a*, with pairs of vertical short blind openings 22 receiving pegs or pins 23 of resilient plastic such as polyethylene, which pegs project about one-eighth inch beyond said edges.

Since the clearance between both edges 20*a* and the inner surfaces of panels 12 is about one-eighth inch and since the pegs project one-eighth inch each beyond said edges, said pins are each compressed about one-sixteenth inch to get the panel 20 inbetween panels 12. This compression by pressure, friction and resilience, presses the panels 12 in opposite directions, away from each other and against the upper edges 11*g* of the upper grooves 11*e* and against the lower edges 11*h* of the lower grooves 11*e*. The panels 11, 12, 20 are thereby clamped in assembled relation for use as an assembly.

It will be observed that panel 20, instead of being at the rear of device 10 may be placed in any plane between the rear and front of said device, and may be either at right angles to panels 11, 12 or at an inclination to panels 11. The device 10 may be used with only panels 11, 12 and 20 assembled as described, if desired, to store things therein, or to be sat upon like a stool, or both.

However, a front door 30 may be employed, The front door 30 may comprise a front door panel 31. The door panel 31 is rectangular and has a height of about one-sixteenth inch less than the length of side edges 20*b* of rear panel 20, and a width of about one-sixteenth inch less than the length of top and bottom edges 20*a* of said rear panel.

Thus, door panel 31 has upper and lower edges 31*a* and side edges 31*b*. It may be of the same thickness as panels 11,12,20. It has an inner surface 31*c* and an outer surface 31*d*. Means is provided to hinge said panel 31 to the top and bottom panels 12. To this end the upper and lower edges 31*a* of said door panel 31 are formed, adjacent one side edge 31*c* with drilled blind, aligned bores or openings 32. Attached to the undersurface of top panel 12 and to the upper surface of lower panel 12, as by screws 33, are brackets or plates 34 carrying pins 35 riveted thereto and removably journaled in said holes 32. Said plates 34 may be disposed at right angles to the door when said door is closed. Thus, the door may be swung open or closed about the axis of aligned hinge pins 35.

A stop 36 may be fixed to the underside of the top panel 12 by a screw 37, to be disposed in position to limit movement of the door in closing direction, to fully closed position at right angles to aide panels 11.

A hollow knob 40 may be force fitted into a bore 41 in door panel 31 to facilitate opening and closing of the door.

It will be noted that a pair of devices 10 may be conveniently stacked one on top of the other, as shown in FIG. 9, without danger of the top one slipping off. They are stacked with the lower ends of the side panels 11 of the upper device 10, projecting down and straddling the upper top panel 12 so as to overlap and engage the front and rear edges 12*a* of the top panel of the lower device 10. At the same time, the upper ends of side panels 11 of the lower device 10 overlap and engage the front and rear edges of the lower panel 12 of the upper device 10.

The distance between side panels 12 being equal to the distance between front and rear edges of panels 11, the stacking fit is snug.

In FIG. 10 two spaced devices 10 are interconnected by a table top 50 to provide a table or desk.

The table top 50 may be attached to or fitted onto said devices 10 in any suitable manner.

In FIG. 11 there is shown devices 10*a* embodying a modified form of the invention. The device 10*a* is similar to the device 10 except that the devices are longer from side to side and it has two doors 30 instead of one. The side panels 11 are same as in device 10. The top panels 60 are provided with notches 13 at the corners, same as in panel 12, providing edges 14, 15, and end portions which are received in grooves like grooves 11*e*. The doors are hinged at their outer ends and swing in. Stops like stops 36 are provided for both doors. The rear member 61 is like rear member 20, except that it is longer, that is slightly less in length than the distance between side panels 11 of device 10*a*.

The distance between the inner faces of side panels 11 of device 10*a* is twice the distance between edges 12*a* and 12*b* of panel 12, so that two devices 10*a* can be stacked in side by side, aligned relation, on top of two lower devices 10*a* which are in side by side relation, as shown in FIG. 11. Here, too, the lower ends of side panels 11 of the upper two devices 10*a* project down and engage or overlap the upper ends of the front and rear faces of the lower two devices 10*a*. Also, the upper ends of the side panels 11 of the lower two devices 10*a* project up and engage or overlap the lower ends of the front and rear faces of the upper two devices 10*a*.

Two of said panels 20 may be employed if desired.

All the panels may be made of wood, plastic, metal or composition and may be finished in a variety of colors.

It will thus be seen that there is provided an article in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative only.

I claim:

1. A knockdown article of furniture comprising a pair of spaced side panels, top and bottom panels, said side panels having upper and lower interengaging means removably interengaging with complementary interengaging means at the ends of the top and bottom panels, respectively and means disposed between said top and bottom panels to exert resilient upward pressure of the interengaging means of the ends of the top panel against the upper interengaging means of the side panels and to exert resilient downward pressure of the interengaging means at the ends of the bottom panel on the lower interengaging means of said side panels, to retain said side, top and bottom panels in assembled relation.

2. The combination of claim 1, said disposed between means comprising a vertical panel and pieces of resilient material, means to fix said pieces to the upper and lower ends of said vertical panel and said pieces being under compression and pressing against the inner surfaces of said top and bottom panels when said panels are assembled.

3. The combination of claim 2, said pieces of resilient material comprising pegs, said vertical panel having holes in its upper and lower ends receiving portions of said pegs and comprising said means to fix said pieces to said vertical panel, with portions of said pegs projecting beyond said ends of said vertical panel and engaging said top and bottom panels and being under compression.

4. The combination of claim 1, said interengaging means of said side panels comprising cutaway receiving means opening inwardly, and said complementary interengaging means on said top and bottom panels comprising outwardly extending end extensions at the ends of said top and bottom panels received in said receiving means.

5. The combination of claim 4, said disposed between means comprising a vertical panel and pieces of resilient material, means to fix said pieces to the upper and lower ends of said vertical panel and said pieces being under compression and pressing against the inner surfaces of said top and bottom panels.

6. The combination of claim 5, said pieces of resilient material comprising pegs, said vertical panel having holes in its upper and lower ends receiving portions of said pegs and comprising said means to fix said pieces to said vertical panel, with portions of said pegs projecting beyond said ends of said vertical panel and engaging said top and bottom panels and being under compression.

7. The combination of claim 2, and a door hinged to the front edge of one of said side panels.

8. The combination of claim 7, said door comprising a door panel, hinges fixed to the top and bottom panels and having hinge pins removably journaled in holes formed in the upper and lower edges of said door panel.

9. The combination of claim 8, said pieces of resilient material comprising pegs, said vertical panel having holes in its upper and lower ends receiving portions of said pegs and

comprising said means to fix said pieces to said vertical panel, with portions of said pegs projecting beyond said ends of vertical panel and engaging said top and bottom panels and being under compression.

10. The combination of claim 9, said interengaging means of said side panels comprising cutaway receiving means opening inwardly, and said complementary interengaging means on said top and bottom panels comprising outwardly extending end extensions at the ends of said top and bottom panels received in said receiving means.

11. The combination of claim 2, said vertical panel being located at the rear ends of said top, bottom and side panels, the distance between the inner surfaces of said side panels being one or more times the distance from the front to rear edges of said top and bottom panels.

12. The combination of claim 2, rear edges of said top, bottom and side panels being disposed in one vertical plane, the front edges of said top, bottom and side panels being located in another vertical plane, said side panels being parallel, said top and bottom panels being parallel.

13. The combination of claim 12, the distance between the inner surfaces of said side panels being one or more times the distance between the front and rear edges of said top and bottom panels.

14. The combination of claim 13, said interengaging means on said side panels comprising horizontal grooves spaced from the upper and lower edges of said side panels, said interengaging means on said top and bottom panels comprising end portions of said top and bottom panels received in said grooves.

15. The combination of claim 14, said grooves terminating short of the front and rear edges of said side panels, and said top and bottom panels having right angular corner notches to provide said end portions of said top and bottom panels which are received in said grooves, and abutment surfaces to engage inner surfaces of said side panels.

16. The combination of claim 15, and a door hinged to the front edge of one of said side panels, said door comprising a door panel, hinges fixed to the top and bottom panels and having hinge pins removably journaled in holes formed in the upper and lower edges of said door panel.

17. The combination of claim 16, said side panels being square, and all said panels being of equal thickness.