United States Patent

Ungaro

[15] **3,653,734**

[45] **Apr. 4, 1972**

[54] MODULAR FURNITURE

[72] Inventor: **Nicholas A. Ungaro,** Louisville, Ky.

[73] Assignee: **Armstrong Cork Company,** Lancaster, Pa.

[22] Filed: **June 29, 1970**

[21] Appl. No.: **50,793**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 804,499, Mar. 5, 1969, Pat. No. 3,606,506.

[52] **U.S. Cl.** .....**312/107,** 220/97 R, 312/198

[51] **Int. Cl.** **A47b 87/00**

[58] **Field of Search**.....312/107, 111, 257 R, 198; 220/97 R; 211/126, 177, 133, 148

[56] **References Cited**

UNITED STATES PATENTS

3,030,163	4/1962	Gottsegen	220/97 X
3,154,197	10/1964	Tweed	220/97 X
3,231,074	1/1966	Block	220/97 X
3,347,609	10/1967	Mann	312/257 X
3,361,293	1/1967	Box	220/97
3,464,372	9/1969	Fiterman	312/111
3,481,507	12/1969	Sanders	211/126

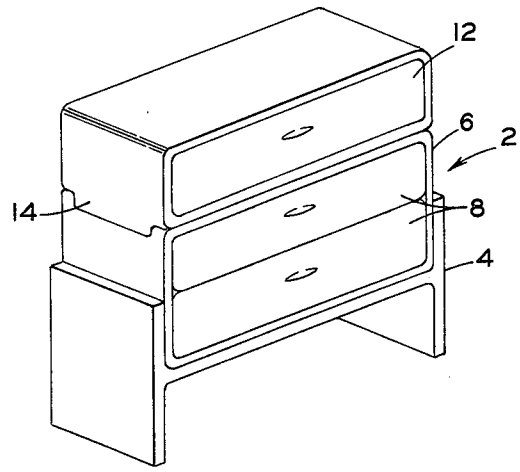
Primary Examiner—James T. McCall

Attorney—Clifford B. Price

[57] **ABSTRACT**

Modular furniture is assembled in a number of different designs from certain standard components. An H-shaped support frame is adapted to hold canister elements into which there are placed drawers or onto which is positioned doors. A lip structure on the canister locks the canister to the support frame. It is possible to lock together a plurality of canister structures without the support frame and with just the lip structure being used to hold together the plurality of canisters. The H-shaped frame could be utilized alone and, when provided with a number of legs of different lengths, the support frame may be utilized to form a plurality of book shelves of different heights.

6 Claims, 8 Drawing Figures



PATENTED APR 4 1972 3,653,734

SHEET 1 OF 3

Fig. I

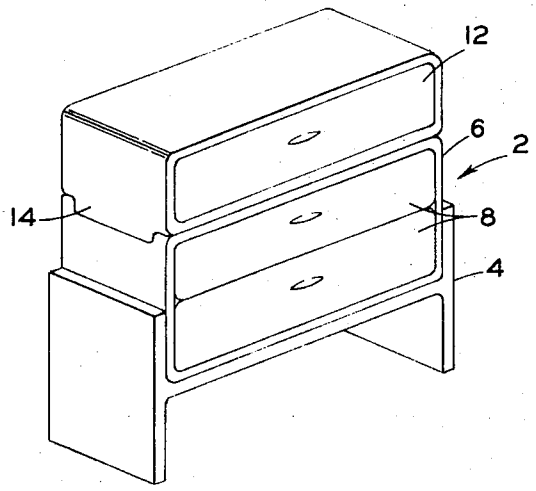


Fig. II

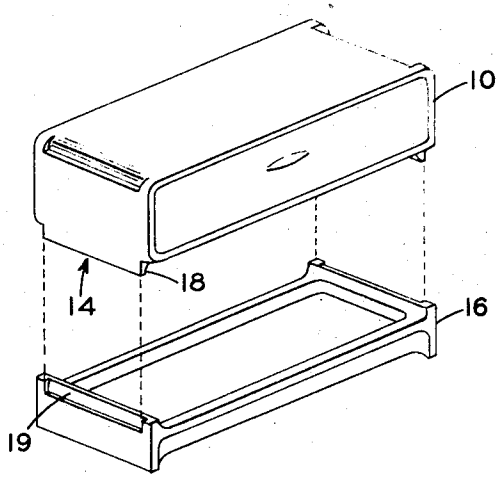
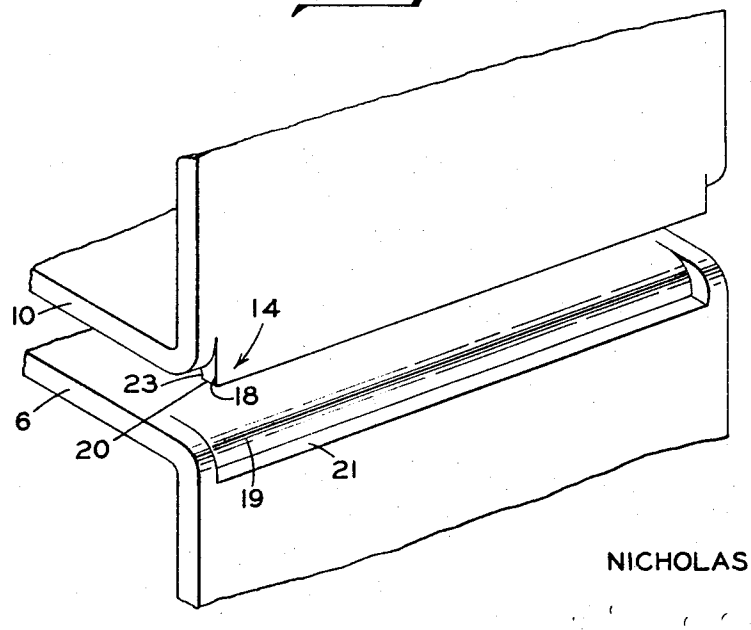


Fig. III



INVENTOR
NICHOLAS A. UNGARO

BY

ATTORNEY

Fig. IV

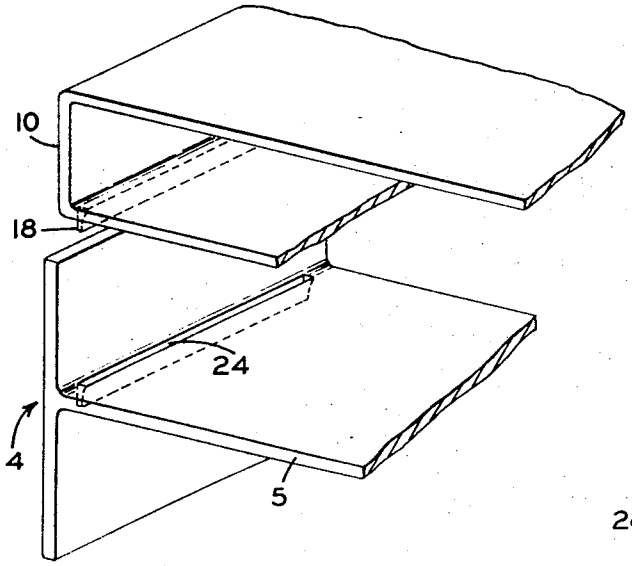
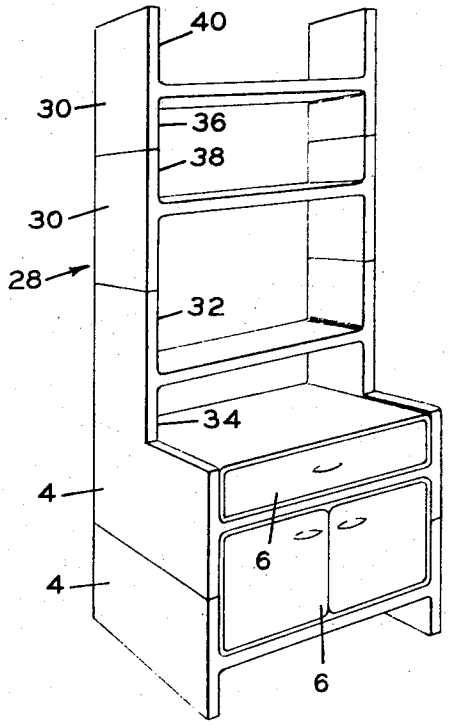


Fig. VI



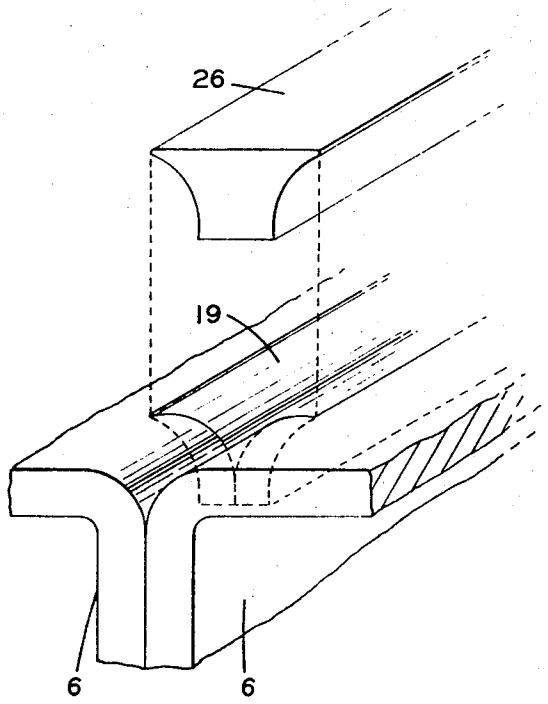


Fig. V

INVENTOR
NICHOLAS A. UNGARO

BY

ATTORNEY

Fig. VII

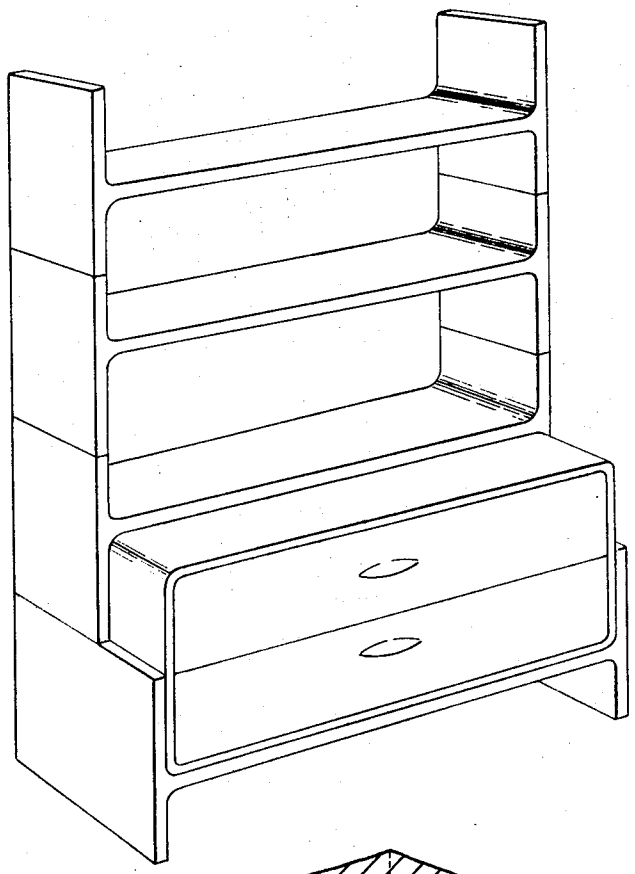
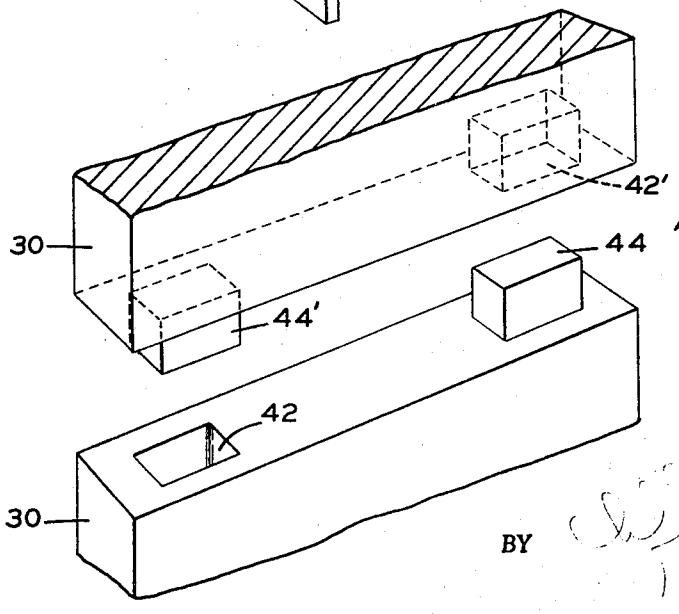


Fig. VIII



INVENTOR
NICOLAS A. UNGARO

BY

ATTORNEY

MODULAR FURNITURE

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of application Ser. No. 804,499, filed Mar. 5, 1969, in the name of Nicholas A. Ungaro, now U.S. Pat. No. 3,606,506.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention is directed to furniture construction and, more particularly, to a modular furniture construction.

2. Description of the Prior Art

The structure of the above-mentioned copending application covers the unique H-shaped frame construction with the inserted canister. The H-shaped support frame is basically two end members with a horizontal interconnecting member extending between the two end members to form an H configuration structure. The canister structure is then placed on the horizontal member and between the two end members.

The invention herein is the provision of that above structure with a new and unique interlocking structure which has the further advantage of now permitting a variety of canisters to be nested together alone without the need to utilize the H-shaped frame support. In addition, the H-shaped frame support has been modified to permit its utilization alone as a bookcase construction unit.

SUMMARY OF THE INVENTION

The invention herein is directed to the use of the H-shaped support frame with a canister structure. The body of the canister structure is provided with projecting lip structures which extend beyond the lower plane of the canister structure. The horizontal support shelf of the H-shaped frame is provided with recesses into which the projecting lips of the canister may be placed. This locks the canister to the H-shaped support frame. In addition, the upper corners of the canisters are provided with recesses into which the projecting lip structures of the lower surface of an overlying canister may be placed. Consequently, a plurality of canisters may be stacked one upon the other, and the projecting lip structures coacting with the recesses in the underlying canister will lock together the two canisters.

The H-shaped frame structure has been provided with legs which are of different lengths. That is, the end members extending beyond the horizontal connecting member would be of different lengths on either side of the horizontal connecting member. Consequently, depending upon the manner in which a number of the H-shaped members are stacked together, the H-shaped members will provide a bookcase structure with open areas of different heights. The bookcase structure may be utilized alone or in conjunction with the H-shaped support frame and canister structure.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. I is a perspective view of the H-shaped support and canisters;

FIG. II is an exploded perspective view of a canister and support base;

FIG. III is an enlarged perspective view of the projecting lip structure and recess for locking canisters together;

FIG. IV is an exploded perspective view of the lip structure locking together the H-shaped support frame and canister;

FIG. V is an exploded perspective view of a filler strip for the top of two adjacent canister structures;

FIG. VI is a perspective view of the bookcase structure;

FIG. VII is a modification of FIG. VI; and

FIG. VIII is a perspective view of the interconnecting joint structure for the H-shaped members used as a bookcase.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. I, there is shown both the canister in conjunction with the H-shaped support frame and two canister structures interlocked together alone without the benefit of the H-shaped support frame. It should be remembered when reviewing this particular inventive structure that the disclosures herein are incorporating the disclosures of the above-mentioned copending application. The modular furniture structure **2** is composed of the H-shaped support frame **4** into which is positioned the canister structure **6**. In the canister structure, there is provided drawers **8**. This structure is the same as described in the copending application. The modification which is provided is that a second canister **10** with a drawer **12** is positioned directly over the top of the canister **6** without the utilization of an intermediate second H-shaped support frame. An interlocking structure **14** connects together the two canister structures.

Referring to FIG. II, there is shown an exploded view wherein the canister **10** is placed on a special support structure **16** and not on the conventional H-shaped support frame. The interlock structure **14** which connected together the two canisters would connect together the canister **10** and base **16**. The interlock structure is basically a projecting lip **18** which extends below the lower plane of the canister structure. This projecting lip **18** is received in a recess **19** of the base structure **16**.

Now referring to FIG. III, there is shown an enlargement of the interlocking structure **14**. The lower canister **6** has placed thereon the upper canister **10**. The upper canister **10** has the projection or lip **18** which extends below the lower plane of the bottom surface of canister **10**. The projecting lip **18** is formed merely by extending the side wall of canister **10** straight down to the horizontal surface **20**. The curved surface **23** then blends in the horizontal surface **20** with the bottom plane of the canister **10**. The recess **19'** in the underlying canister **6** is provided with a configuration that will mate with lip **18**. The horizontal surface **20** will rest upon the horizontal surface **21** of the recess **19'**. There will also be engagement with the curved surfaces of the recess and projecting lip, and the bottom surface of canister **10** will rest upon the upper surface of canister **6**. The projecting lip is made somewhat shorter in length than the total depth of the canister structure so that the ends of the lip structure will engage the ends of the recess **19'**, and this prevents relative movement between the canisters **6** and **10** in a direction perpendicular to the front and rear faces of the canister.

Referring now to FIG. IV, there is shown an exploded view of the modified H-shaped frame support which is necessary to now receive the canister structure which has a projecting lip **18**. The transverse member **5** of the H-shaped support frame is provided with a recess **24** shaped to receive the projecting lip **18**. This would lock the canister in position relative to the support frame. It should be noted that the canister may not be placed on the H-shaped support frame as shown in FIG. IV or on the base as shown in FIG. II, but that the canister could be rested directly on the ground with the projecting lip structure **18** functioning as a leg structure for the canister.

Referring now to FIG. V, there is shown a structure which may be utilized to provide a finishing effect to a plurality of canisters in a side-by-side relationship. When two canisters **6** are placed in a side-by-side relationship with no further canisters supported thereabove, each canister has a recess **19**. These adjacent recesses **19** form an area by the canister's joint structure which may tend to be unsightly in appearance. This open area caused by the dual recesses **19** is filled in by the use of filler strip **26** which is shaped to fit within the dual recesses **19**. The two adjacent canister structures are then provided with a finished-off appearance.

FIG. VI is a modification of the basic H-shaped frame support system. The structure therein is provided with two basic H-shaped frame supports **4** into which are positioned two standard canister structures **6**, in a manner very similar to that

shown in the copending application. The above basic structure of FIG. VI is provided with a bookcase configuration **28**. This bookcase configuration is developed by the use of a plurality of specially dimensioned H-shaped frame support members **30**. Each support end member is comprised of a section **32** which extends above the transverse member and a section **34** which extends below the transverse member. These two sections **32** and **34** are of different lengths. Specifically, these are of 4½ inches and 6½ inches in length. Consequently, depending on the manner in which the members **30** are stacked together, it is possible to get bookcase openings of different sizes. Referring to the elements marked **36** and **38**, if both elements were 4½ inches in length, there would be provided a 9 inch opening. If one was 4½ inches and the other 6½ inches in length, there would be an 11 inch opening. Naturally, depending on whichever size **36** and **38** would happen to be, the side opposite these sides would be the other dimension. That is, if side **36** was 4½ inches, side **40** of the same support structure must be 6½ inches.

FIG. VII is simply another embodiment of the structures **30** of FIG. VI showing a modified nesting arrangement. It should be noted specifically that one leg of the modified H construction is the same size as the legs of the standard H-shaped support frame **4** so that the modified H-shaped support frame **30** may fit over a canister as shown on FIG. VII.

Referring to FIG. VIII, there is shown a modified joint structure for the H-shaped support frame **30**. Since the frames of the copending application were meant to be stacked together without the need for rotation, each side of the ends was provided with two projections on one end and two recesses on the opposite end. Because the modified H-shaped frames **30** are meant to be utilized turned one direction or the other, there must be a modification of the interconnecting structure holding together a plurality of H-shaped support frames. Each end section has a recess **42** and a projection **44**. The recess **42** will receive the projection **44'** of the overlying H-shaped frame, and projection **44** will go into the recess **42'** of the overlying frame member. When the overlying frame member would be rotated 180° to provide its opposite side dimension, it should be noted that its structures **42'** and **44'** would be in the positions shown by elements **42** and **44**. Consequently, by the use of this joint configuration, it is possible to nest together the modified H-shaped support frames **30** to provide the different size openings therebetween.

What is claimed is:

1. In a modular furniture system comprising the combination of at least one of each of the following modular units; and H-type support frame comprised of a pair of vertically disposed longitudinally spaced end members interconnected in upstanding relationship by an integrally formed transverse member, said transverse member having an upper and lower surface, and a canister, open at one end, comprising upper and lower walls, a pair of side walls and a rear wall, said canister dimension to be received between the upstanding end members of a support frame and supported on the upper surface of the transverse member thereof, the improvement therein comprising a lip structure projecting from the side walls of the canister and extending beyond the plane of the lower wall of the canister, said upper surface of the transverse member of the support frame having a recess at the junction of an end member and the traverse member and into which recess the lip structure is received to lock the support frame and canister together.

2. A modular furniture unit comprising an H-shaped support frame, said frame having two vertical end members forming the straight legs of the H-shape and a transverse member interconnecting the end members, said transverse member engaging the end members at a point between their two ends so as to provide an H shape with the legs of the H being of unequal lengths when measured from the transverse member to the ends of the end members, the ends of the end members being spaced the same distance apart and have means capable of engaging the ends of like H-shaped units to lock the units together, the end engaging and locking means is a projection and recess located on each end of the end members and the projection on one end of an end member is opposite the recess on the other end of the same end member.

3. A modular furniture unit comprising a canister structure which has a top, bottom and two sides in a closed configuration, said canister having at least one opening means which is capable of receiving components to form the canister into a closeable storage unit, a lip structure extending from at least one lower corner edge of the canister, said lip structure being an extension of the side of the canister and in the plane of the side and extending below the plane of the bottom side of the canister, said lip structure being shorter than the length of the corner edge of the canister, and a recess formed in the upper corner edge of the canister with a size and configuration the same as the shape of the lip structure so that two canister structures can be placed one on the other and the lip of the upper canister will fit in the recess of the lower canister to lock the two units together.

4. A modular furniture unit as set forth in claim **3** wherein a base structure is provided, said base structure has a recess means to receive the lip structure of the canister so that the canister may be placed on a support base and not directly on the floor when in use.

5. A modular furniture unit as set forth in claim **4** wherein the base structure is H-shaped and the recess means is in the transverse member of the H shape.

6. A modular furniture unit as set forth in claim **3** wherein a trim strip is provided and shaped to provide a filler for the open area formed by the recesses of two adjacent canister structures.

* * * * *