April 18, 1967 R. J. LAPPIN ETAL 3,314,740

FURNITURE UNIT AND ASSEMBLY

Original Filed Aug. 16, 1963 5 Sheets-Sheet 1

Fig. 1.

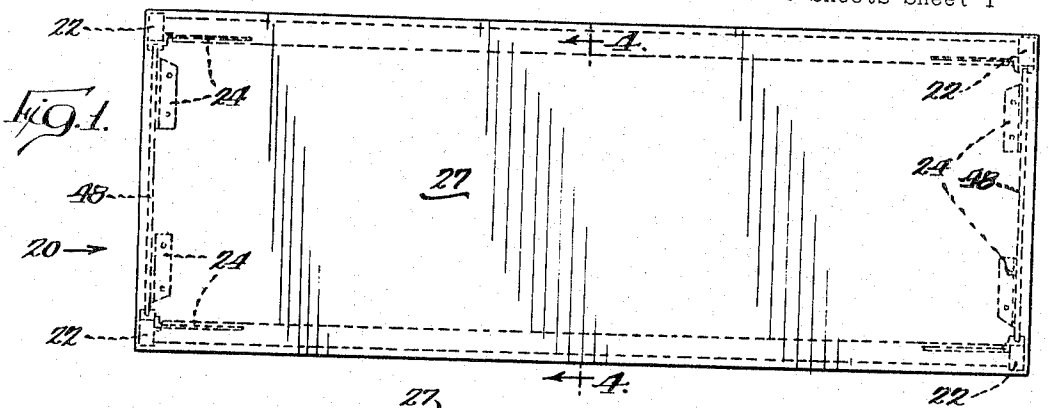


Fig. 2.

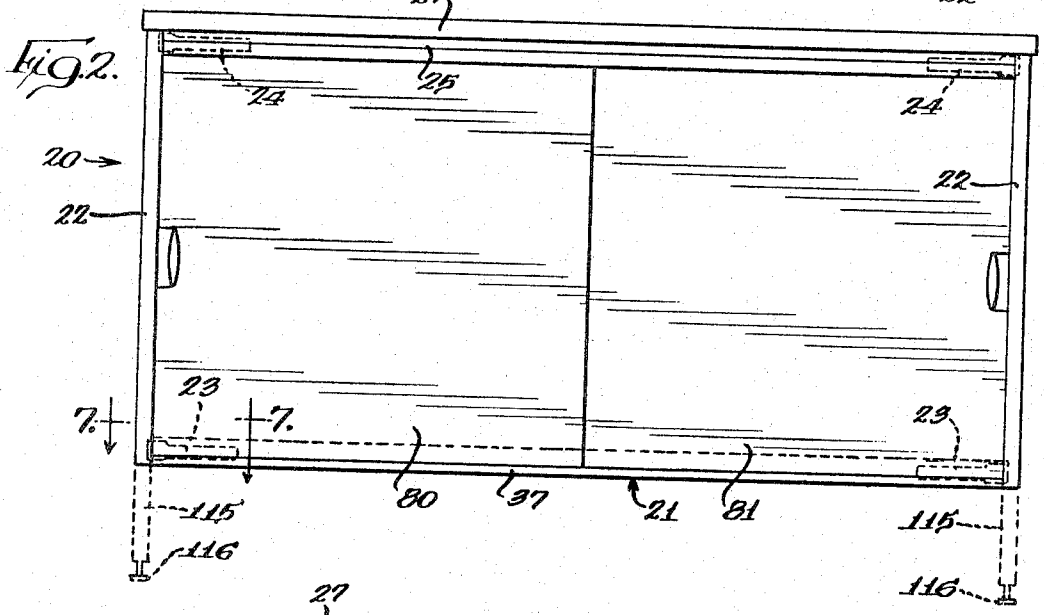
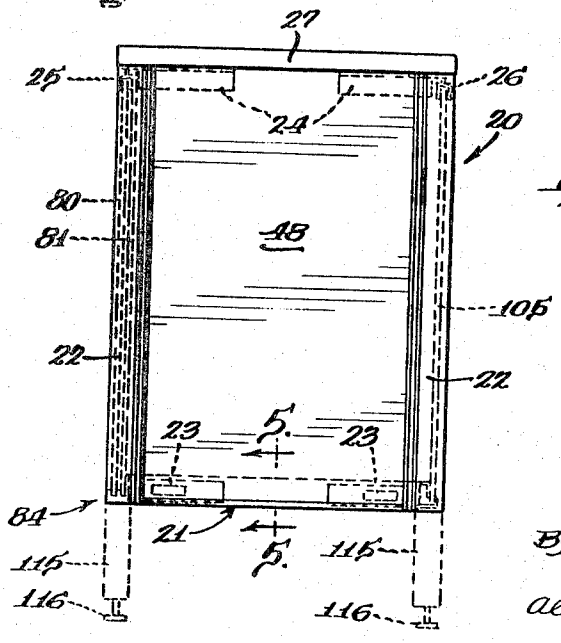


Fig. 3.



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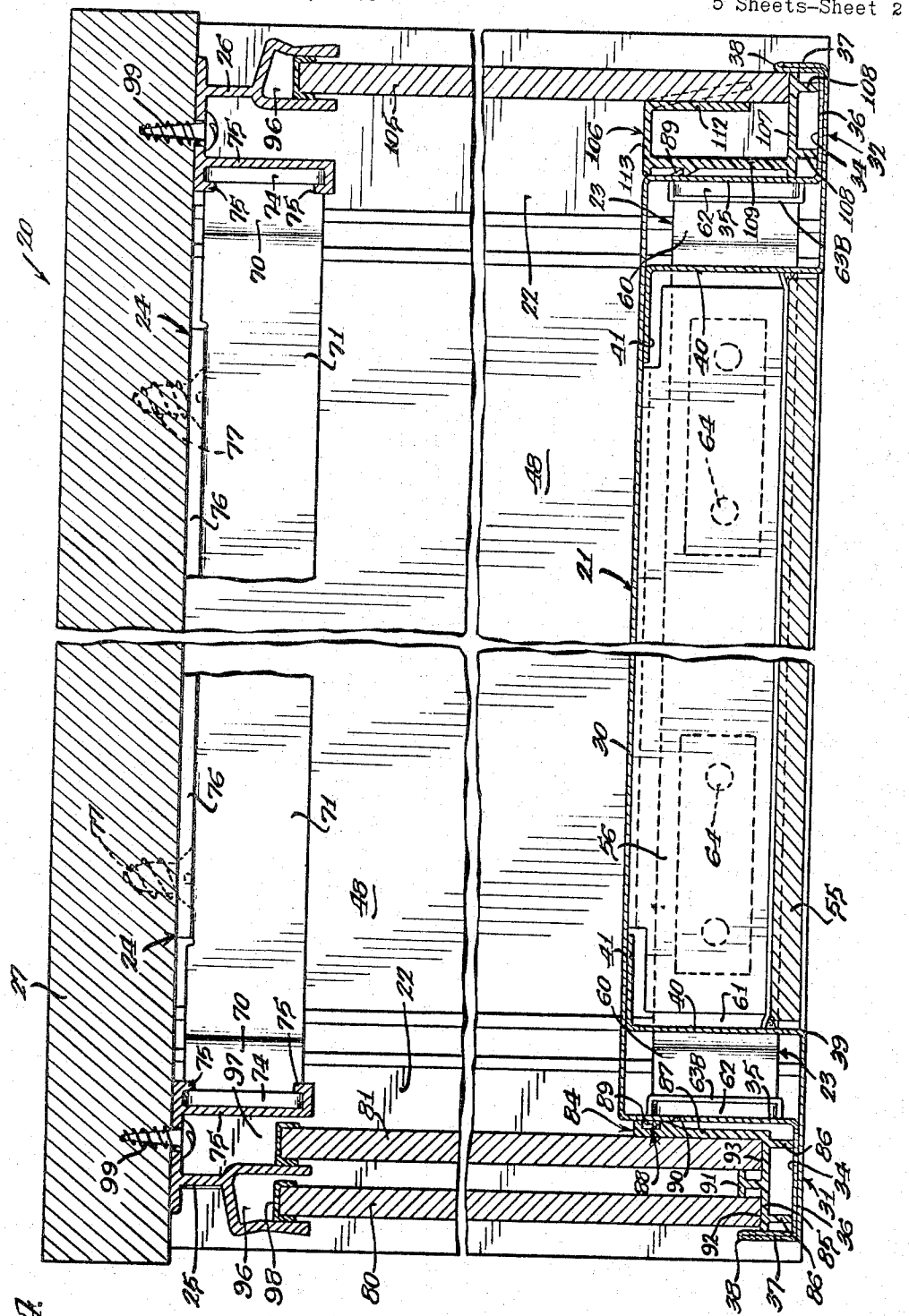


Fig. 4

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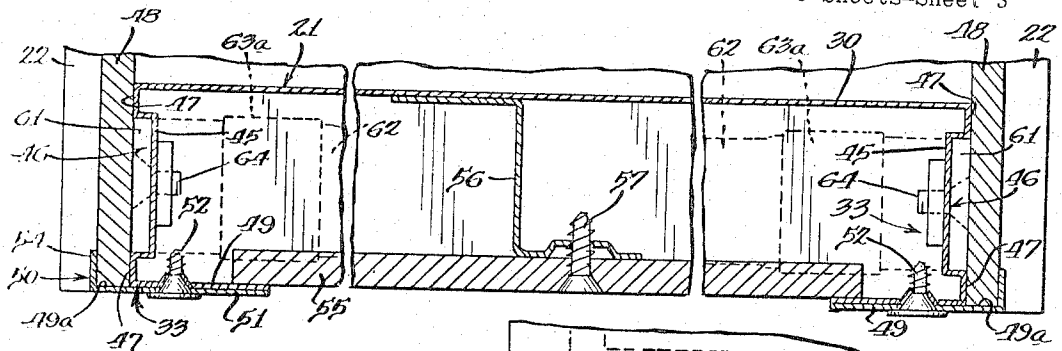


Fig. 5.

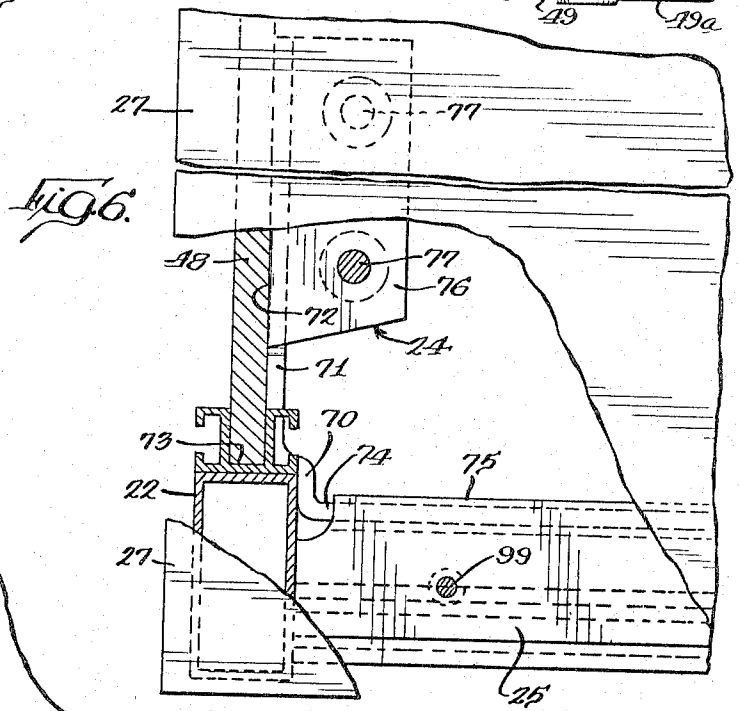


Fig. 6.

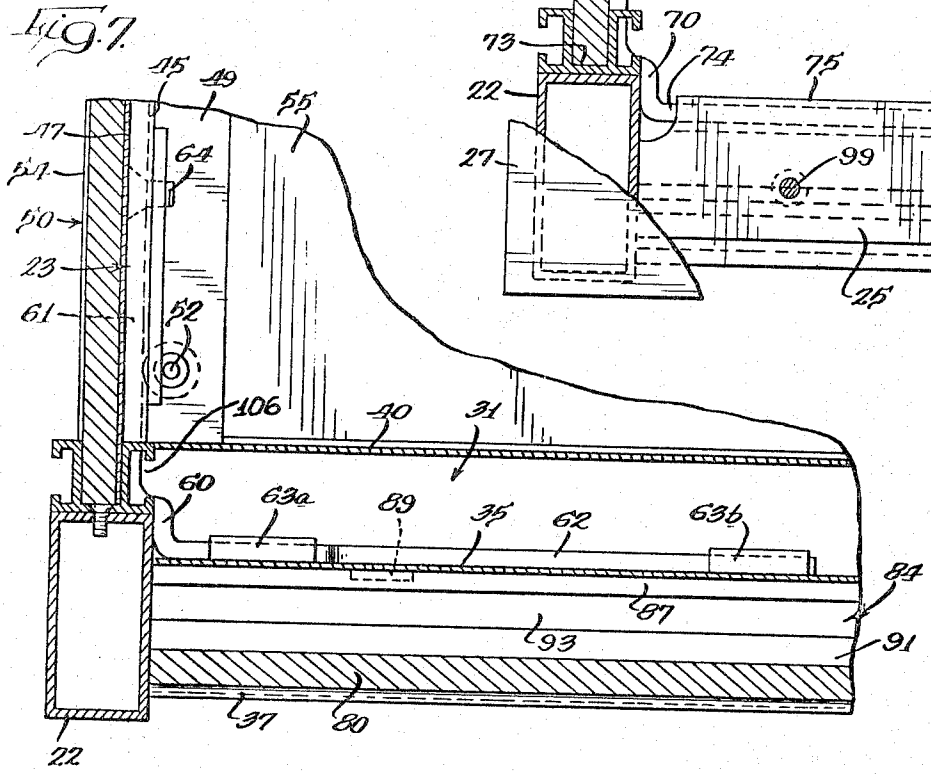


Fig. 7.

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Fig. 8.

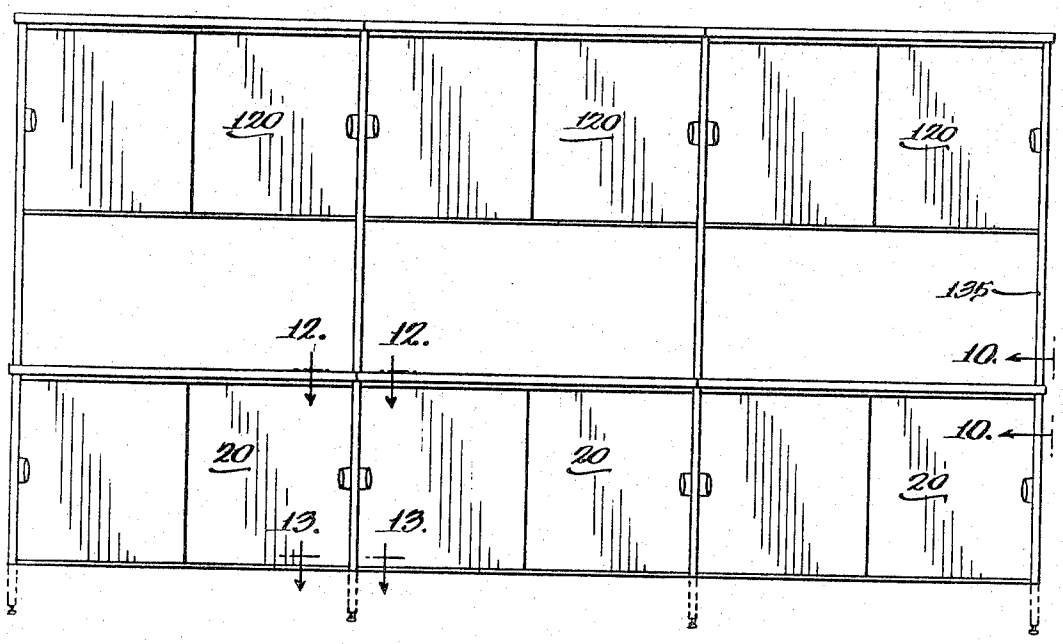
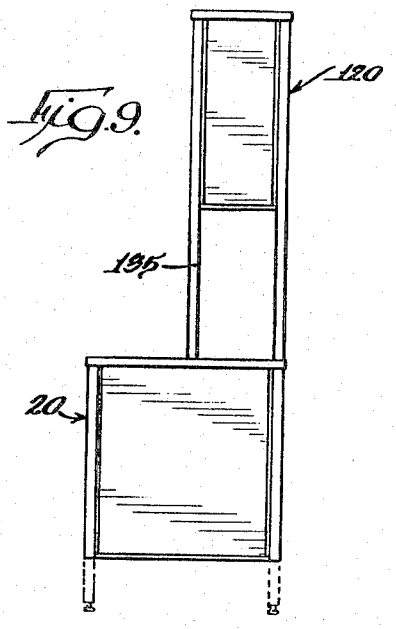


Fig. 9.



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Fig. 10.

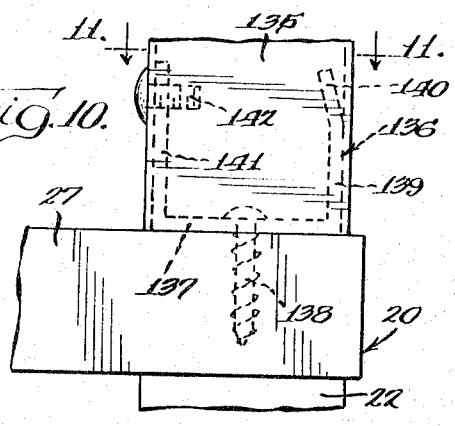


Fig. 11.

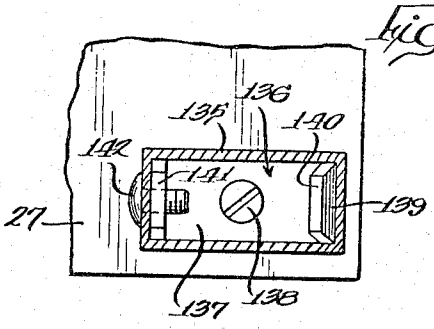


Fig. 12.

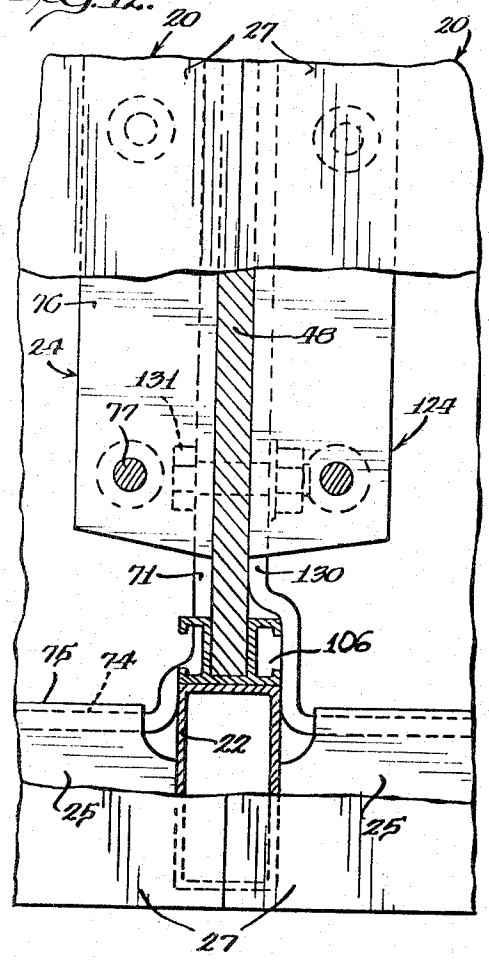
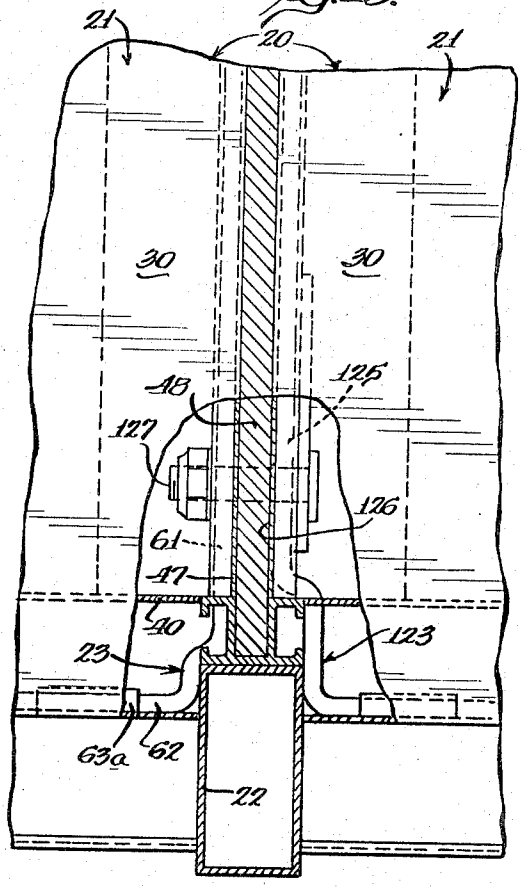


Fig. 13.



United States Patent Office 3,314,740 Patented Apr. 18, 1967

3,314,740

FURNITURE UNIT AND ASSEMBLY

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Original application Aug. 16, 1963, Ser. No. 302,548. Divided and this application Apr. 11, 1966, Ser. No. 541,613

5 Claims. (Cl. 312—111)

This application is a divisional application of our copending application Ser. No. 302,548, now Patent No. 3,276,831, entitled, "Furniture Assembly," and filed Aug. 16, 1963.

This invention relates to furniture, and more particularly to a furniture assembly of horizontally ganged and vertically stacked furniture units, and components thereof.

The primary object of this invention is to provide new and improved furniture.

Another object is to provide new and improved furniture units particularly suited to horizontal ganging and vertical stacking. A related object is provision of new and improved components in such a unit. Another related object is provision of new and improved stacking units and ganging assemblies of such units.

A further object is provision of a new and improved corner assembly in a furniture unit or the like. A related object is provision of a bracket component of such an assembly for connecting furniture ends with fronts or backs and tops or bottoms.

A still further object is provision of a new and improved mounting member for panels. A related object is provision of a new and improved furniture unit bottom assembly including such mounting members.

Other objects and advantages of the invention will become readily apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a top view of a furniture unit embodying features of the invention;

FIG. 2 is a front view of the unit;

FIG. 3 is a right side view of the unit;

FIG. 4 is an enlarged, fragmentary vertical sectional view taken generally along the line 4—4 in FIGS. 1 or 2;

FIG. 5 is an enlarged, fragmentary vertical sectional view taken generally along the line 5—5 of FIG. 3;

FIG. 6 is an enlarged, fragmentary plan view of a left front corner portion of the unit as shown in FIG. 1;

FIG. 7 is an enlarged, fragmentary horizontal sectional view taken generally along the line 7—7 of FIG. 2;

FIG. 8 is a front view of an assembly of horizontally ganged and vertically stacked units similar to that shown in FIG. 2;

FIG. 9 is a right side view of the assembly in FIG. 8;

FIG. 10 is an enlarged, fragmentary side view showing a stacking fixture and taken generally along the line 10—10 in FIG. 8;

FIG. 11 is a horizontal sectional view taken generally along the line 11—11 of FIG. 10;

FIG. 12 is an enlarged, fragmentary horizontal sectional view taken generally along the line 12—12 of FIG. 8; and

FIG. 13 is an enlarged, fragmentary horizontal sectional view taken generally along the line 13—13 of FIG. 8.

While an illustrative embodiment of the invention is shown in the drawings and will be described in detail herein, the invention is susceptible of embodiment in many different forms, and it should be understood that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope

of the invention will be pointed out in the appended claims.

Referring to FIGS. 1–3 of the drawings, a furniture unit is illustrated in the form of a cabinet **20**. In the preferred embodiment, cabinet **20** has a rectangular bottom pan **21** secured to upright tubular corner posts **22** by brackets **23** on lower portions of the posts. Brackets **24** on the upper portions of the posts mount a front facial member **25** and a rear facial member **26**, both extending between opposite ends of the cabinet, and brackets **24** also secure a cabinet top **27** to the posts, thus providing a self-supporting structure.

As may best be seen in FIGS. 4 and 5, bottom pan **21** is preferably of unitary sheet metal construction and has a horizontal web member **30** connecting a front facial edge portion **31** and an opposite rear facial edge portion **32**, and opposite side edge portions **33**. The front and rear facial edge portions **31** and **32** are similar to each other in that each is provided with a channel portion **34** defined by a long upright leg **35** depending from an edge of web **30**, with a portion including an outwardly extending horizontal bight **36** terminating in a short upright leg **37** extending upwardly from the outer edge of bight **36**. The sheet metal is folded outwardly upon itself at a return portion **38** at the upper edge of leg **37** and extends therefrom in facial engagement with leg **37** and bight **36** downwardly and inwardly to an inner edge **39** at which the sheet metal is bent upwardly to define a brace part **40** securely connected with web **30** inwardly of leg **35** by means of an inwardly extending horizontal flange **41** secured as by welding to the lower face of web **30**.

With reference to FIG. 5, side edge portions **33** of bottom pan **21** each includes an upright flange **45** depending from side edges of web **30**. Each flange **45** has a longitudinally extending inwardly recessed channel **46** providing upper and lower bearing surfaces **47** for an adjacent side panel **48**. A horizontal flange **49** extends inwardly from the lower edge of flange **45**. Each lower bearing surface **47** forms an inner wall of a longitudinally extending channel **49***a* receiving a lower edge portion of the respective side panel. A bracket **50** has a horizontal flange **51** secured, in a suitable manner as by screws **52**, to the respective horizontal flange **49**, to complete channel **49***a*. Bracket flange **51** terminates in an upwardly extending short leg **54** which embraces the outer face of the respective side panel **48**.

If desired, a trim plate **55** may be provided, and this plate is preferably generally horizontally coplanar with lower extremities of the edge portions **31**, **32** and **33** to provide a neat and finished appearance. Horizontal flanges **49** support trim plate **55**, and a brace **56**, suitably firmly secured to and depending from web **30**, may be secured to trim plate **55** as by one or more screws **57** to hold the plate against horizontal or upward movement.

As may best be seen in FIGS. 4 and 7, lower brackets **23**, each has an apex or corner **60** secured in any suitable manner, as by welding, to the respective post **22**. A first vertical flange member **61** extends outwardly from the apex and is received in channel **46** which upstands by portion **47** from flange **49**. If desired, a fastener such as a bolt **64** may be utilized to secure flange **45** to flange **61**. A second vertically disposed flange member **62** extends from the apex and is telescopically received in U-shaped straps **63***a* and **63***b* stamped inwardly from leg **35** of the adjacent facial edge portion **31** or **32**. The innermost U-shaped strap **63***b* is preferably slightly smaller than the outer U-shaped strap **63***a* so that flange member **62** may have a reduced free end which passes easily through the outer strap **63***a* and is snugly seated in the inner strap **63***b*. Flanges **61** and **62** are normal to each other and to post **22**, and have generally horizontally coplanar edges.

Each upper bracket 24 has an apex or corner 70 (FIGS. 4 and 6) secured, e.g., by welding, to the upper end of respective post 22. A first vertical flange member 71 extends outwardly from the apex and has an outer surface 72 defining abutment means receiving an inner face of the adjacent side panel 48 which has opposite side edge portions received in channel members 73, one secured to each post 22. A horizontal third flange 76 extends inwardly from the upper edge of first flange 71 and receives a suitable fastener 77 securing top 27 to the respective bracket 24 and leg 22. Each bracket 24 further has a second flange member 74 telescopically received in suitable holding means such as a C-shaped channel 75, extending inward from the facial member 25 or 26. The end fraction of an inch portion of flange 74 adjacent corner 70 is slightly wider than the remainder of the flange for snug or forced fit within the end portion of C-channel 75. Insertion of flange 74 into the end of channel 75 is by easy slip fit until the last fraction of an inch which is snug fit. Flanges 71 and 74 are generally normal to each other and to the adjacent post 22 and have horizontally coplanar edges.

With reference to FIGS. 1, 3 and 4, cabinet 20 is provided with a pair of overlapping sliding doors including an outer door 80 and an inner door 81 slidably supported by bottom pan 21 and front facial member 25. More particularly, lower edge portions of the doors are supported in a track mounting member 84, of material such as plastic, received in front edge portion channel 34. Mounting member 84 has a bottom 85 seated on channel bight 36 by means of longitudinally extending feet 86 spaced apart transversely of channel 34. An upright leg 87 extends from an inner edge of bottom 85 upwardly along long leg 35 of channel 34. Means for holding mounting member 84 in channel 34 is provided by abutment means in the form of an upper generally horizontal surface 88 extending inwardly from leg 87 and receiving tabs 89 struck outwardly from leg 35. The abutment means also has a lower inclined surface 90 which rides over tabs 89 as the mounting member is inserted in channel 34. A generally T-shaped leg 91 extends upwardly from bottom 85 intermediate upright leg 87 of the mounting member and short leg 37 of channel 34, thus providing a pair of parallel longitudinally extending tracks 92 and 93 receiving lower edge portions of doors 80 and 81, respectively.

Upper front facial member 25 is preferably extruded aluminum and is provided with a pair of downwardly opening channels 96 and 97 slidably receiving upper edge portions of doors 80 and 81, respectively, these upper edge portions being embraced by suitable downwardly opening longitudinally extending channels 98 of suitable material, such as plastic, for providing low friction with the front facial member 25 and preventing scarring of the doors and rattling of doors in the top track. Preferably, member 25 is secured to top 27 by screws 99 since such securing has been found to markedly improve the cabinet structure stability. It should be noted that channels 96 and 97 are deep so that the respective doors may be lifted upwardly in these channels to clear the lower tracks 92 and 93 upon insertion or removal of the doors.

A back panel 105 is supported at its lower end by bottom pan 21 and at its upper end by a rear facial member 26 which may be of identical construction as front facial member 25, and receives the upper edge portion of back panel 105 in a manner similar to the mounting of the doors. The lower edge portion of back panel 105 is supported on a rear mounting member 106. Member 106 is generally similar to mounting member 84 in that it is provided with a bottom 107 supported on rear channel bight 36 by longitudinally extending depending feet 108 spaced transversely of the channel, with an upright leg 109 extending from the inner edge portion of bottom 107 upwardly along inner channel leg 35, and is held in rear channel 34 by tabs 89 engaging abutment means on upright leg 109, all as previously described with reference to front mounting member 84. An arm 112 depends from an upper edge portion of upright leg 109 and more particularly from an outer edge of a generally horizontal flange 113 extending outwardly from the upper edge of leg 109. Arm 112 is normally inclined downwardly and outwardly, as indicated by dotted lines in FIG. 4. The mounting members are preferably formed of a suitably resiiient plastic material so that arm 112 is normally resiliently urged outwardly, and upon insertion of lower edge portion of back panel 105 the arm is forced inwardly to tightly urge the back panel against short leg 37 of rear channel 34.

As shown by dotted lines in FIGS. 1–3, posts 22 may extend below bottom pan 21 to provide legs 115 for the cabinet, and these legs may be provided with vertically adjustable feet 116 of any suitable nature.

It should be understood that there is provided a basic structure consisting of four corner posts as at 22, an upper shelf member as at 27, a lower shelf member as at 21, and angle brackets as at 23 and 24 for rigidly attaching the shelf members to the corner posts. This basic structure as thus described supplies substantially the entire structural rigidity and provides a basic structure which may be optionally modified in various ways to suit particular uses and applications. More specifically, end panels as at 48 may be optionally utilized if closure at such positions is desired by suitably supporting the end panels in upwardly facing panels as at 49*a* in the lower shelf and in laterally facing channels as at 73 in the upright corner posts. Front or rear panels may be optionally provided as at 105 by supporting the latter in upwardly facing channel means as at 107 in the lower shelf and by downwardly facing channel means in the upper shelf as at 96. Alternatively, front or rear sliding door panels may be provided in the front or rear as at 80 and 81, supported in upwardly facing channel means as at 92 and 93 in the lower shelf and downwardly facing channel means as at 96 and 97 in the upper shelf.

Either with or without end, front or rear closure panels, the posts may be utilized for optionally supporting intermediate shelves adapted to rest upon shelf supporting clips of the type illustrated in the pending application of Charles W. Schneider filed Dec. 5, 1961, as Ser. No. 157,128, now U.S. Patent No. 3,125,970, or the pending application of Victor C. Schroeder filed Nov. 26, 1962, as Ser. No. 240,017, which are receivable in longitudinal laterally facing channels as at 106 in the corner posts.

A plurality of furniture units 20 may be horizontally ganged and vertically stacked as illustrated in FIGS. 8 and 9. As illustrated therein, upper furniture units of the stack assembly are not as deep as lower furniture units 20, but may be of any desired size and similar construction, and these upper furniture units have been designated by reference numeral 120.

With reference to FIGS. 12 and 13, when it is desired to gang the furniture units, an end of one of the cabinets 20 adjacent the end of another cabinet is devoid of upright posts 22, brackets 23 and 24 and side panel 48, and instead is provided with lower brackets 123 and upper brackets 124 corresponding generally to brackets 23 and 24, respectively. Brackets 123 and 124 are connected with remaining structure of their respective units in the same manner as brackets 23 and 24, respectively. In the advantageous ganged assemblies, adjacent cabinets in effect share corner posts and end panels. More particularly, and with reference to FIG. 13, bracket 123 has a first vertical flange member 125 with abutment means 126 receiving the outer face of side panel 48 of the adjacent cabinet 20 and secured thereto by a bolt 127, corresponding to bolt 64, but extending through first flange 61 of adjacent bracket 23, panel 48 and flange 125, and secured by a nut. Similarly, each upper bracket 124 has a first flange 130 abutting panel 48 of the adjacent unit with a bolt 131 extending through first flange 71 of bracket

24 of the adjacent unit 20, panel 48 and flange 130, and secured by a nut. Any desired number of cabinets 20 may be ganged in this manner.

The cabinets which are ganged in accordance with the illustrated form of the invention are those cabinets of like end dimensions so that proper alignment is provided at the juncture of adjacent cabinets.

Means for vertically stacking the cabinets may be best seen in FIGS. 8–11. Upper cabinets 120 have upright posts 135, corresponding to lower cabinet upright posts 22 as previously described, and having open lower ends seated on the upper surface of tops 27 of lower cabinets 20 and telescopically receiving fixtures 136. Each fixture 136 is of generally upright U-shaped configuration and has a bight 137 with an opening receiving a fastener such as a screw 138 for securing the fixture to top 27. Each fixture also has a pair of generally parallel upwardly extending legs, and more particularly a first leg 139 having an inwardly inclined upper end portion 140 for guiding the respective leg 135 over the fixture, and a second leg 141 with an opening aligned with a similar opening in leg 135 and receiving a suitable fastener such as a bolt 142 for releasably retaining leg 135 and its cabinet in stacked relationship with the lower cabinet.

We claim:

1. A furniture unit assembly comprising a furniture unit including: an upright; upper and lower brackets secured to said upright and having a pair of generally horizontally disposed members and a first of said members providing abutment means, and a second of said members having a free end portion, and said upper bracket having a third member extending from said first member and between said pair of members; a furniture top extending across said upper bracket and connected with said upper bracket third member; a bottom having a corner defined by a facial edge portion and an end portion, the facial edge portion having a tubular portion telescopically receiving the lower bracket second member, the end edge portion abutting the lower bracket abutment means and being firmly secured to the lower bracket first member, an upper facial member having a tubular portion telescopically receiving the upper bracket second member; an upright end panel mounted on the end edge portion and abutting the upper bracket abutment means; and means firmly securing said panel to the upper bracket first member.

2. The furniture unit assembly of claim 1 comprising: a plurality of said furniture units, the upper and lower brackets of one of said units having apexes with the apexes secured to said upright, the bracket first member of another of said units being detachably interconnected with the corresponding bracket first member of said one unit to define a ganged assembly, a stacking fixture secured to the top of said one unit, and an additional one of said units being surmounted on said one unit and having its brackets secured to an upright seated on the lower furniture unit top and detachably secured to said fixture for releasably holding the last said furniture unit in a stacked position on the unit therebelow.

3. The furniture unit assembly of claim 1 including an upright side panel mounted on the facial edge portion.

4. A furniture unit assembly corner bracket comprising a body having first and second outwardly facing, elongate, flat elements; a joining element having two perpendicular legs with each leg terminating at one end of a different one of said flat elements and perpendicular to the flat element, said joining element joining said flat elements with said flat elements perpendicular to each other; and a third flat element integral with only the first of said flat elements through a right-angle juncture through one edge of said first flat element, the flat sides of said third flat element being perpendicular to the flat sides of the first flat element.

5. The furniture unit assembly corner bracket of claim 4 wherein said second flat element has opposite converging edge portions spaced from said joining element and narrowing said flat element at its unjoined end.

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