Sept. 13, 1966 E. V. ANDERSON ETAL 3,272,582

BUILDING COMPONENTS FOR CONSTRUCTING CABINETS

Filed Dec. 17, 1964 4 Sheets-Sheet 1

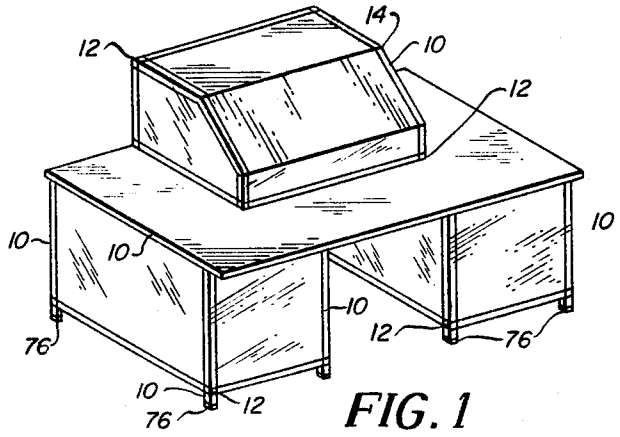


FIG. 1

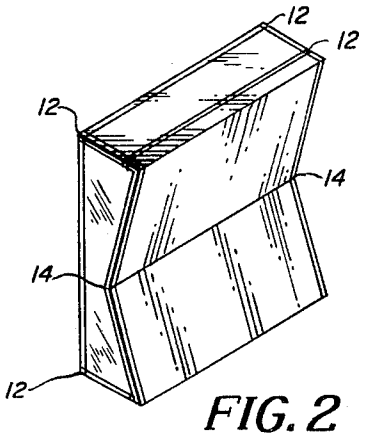


FIG. 2

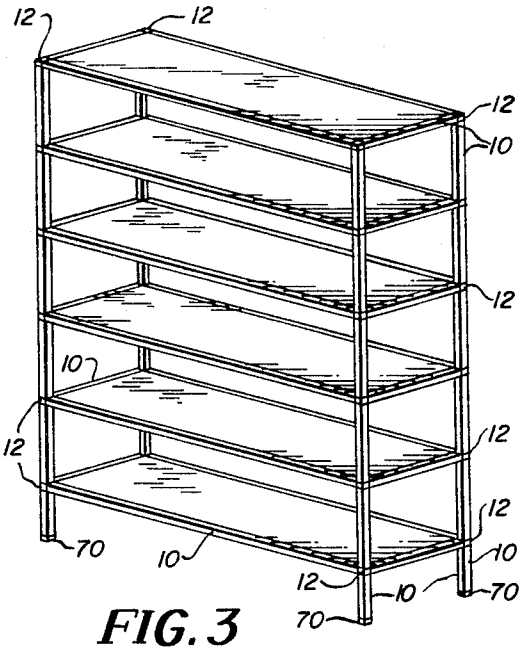


FIG. 3

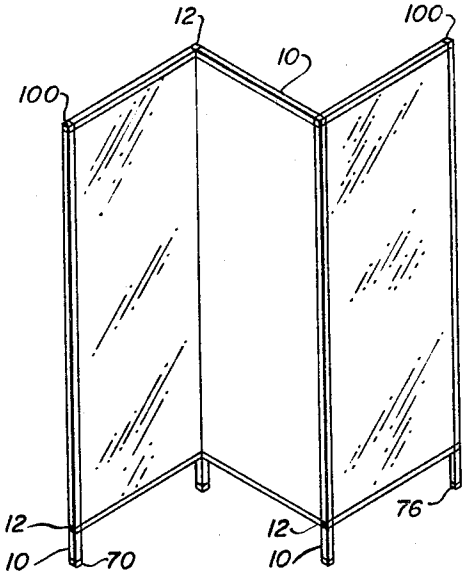


FIG. 5.

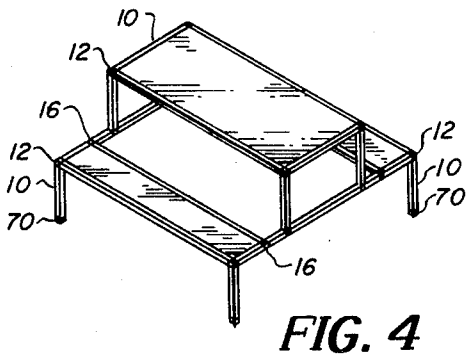


FIG. 4

INVENTOR.
EDWIN V. ANDERSON
JOSEPH A. MACK

BY Dominik and Stein

ATTORNEYS

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BUILDING COMPONENTS FOR CONSTRUCTING CABINETS

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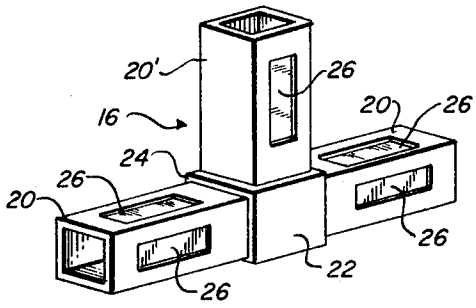


FIG. 6

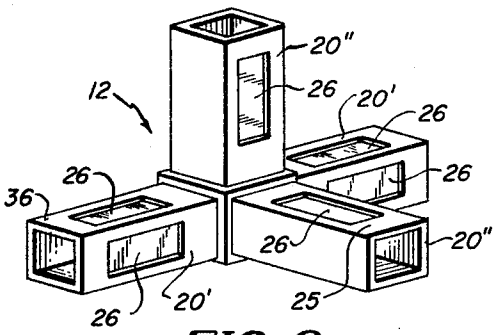


FIG. 8

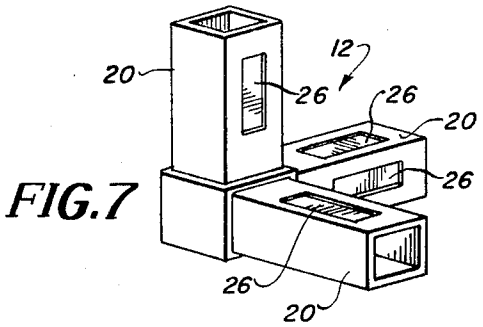


FIG. 7

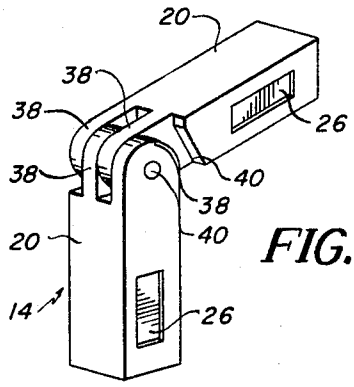


FIG. 10

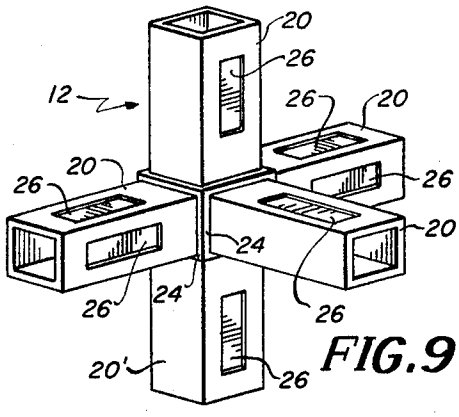


FIG. 9

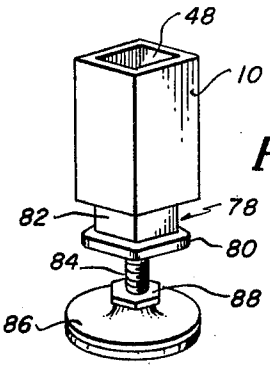


FIG. 11

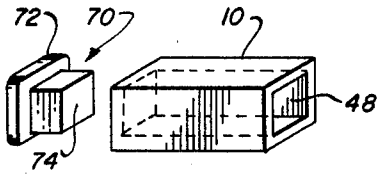


FIG. 12

INVENTOR.
EDWIN V. ANDERSON
JOSEPH A. MACK

BY

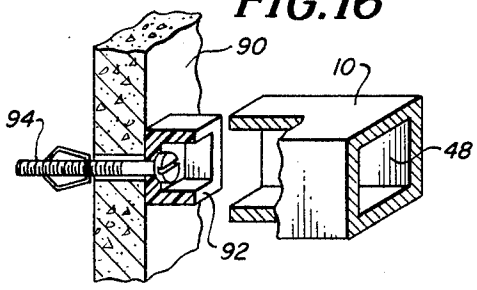
Dominik and Stein

ATTORNEYS

BUILDING COMPONENTS FOR CONSTRUCTING CABINETS

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FIG. 16



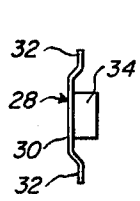


FIG. 14

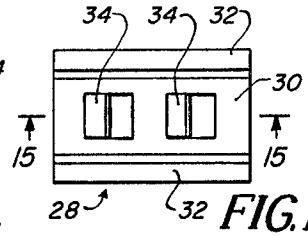


FIG. 13

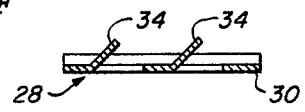


FIG. 15

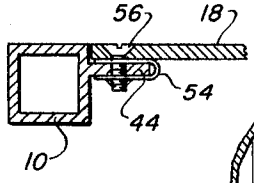


FIG. 17

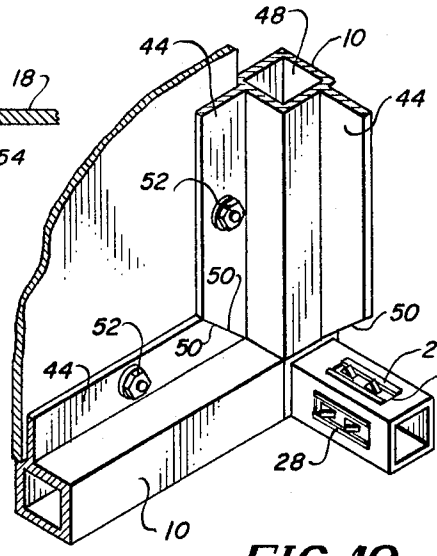


FIG. 19

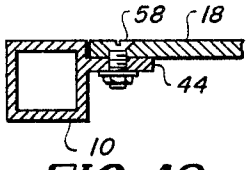
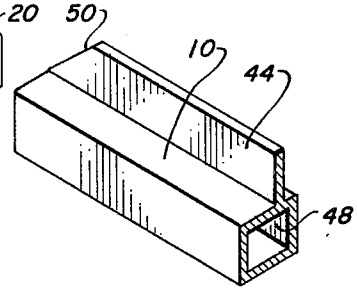


FIG. 18



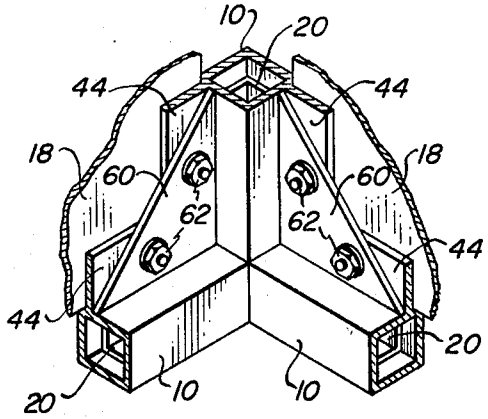


FIG. 20

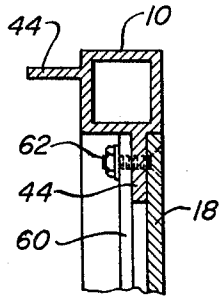


FIG. 21

INVENTOR.
EDWIN V. ANDERSON
JOSEPH A. MACK

BY

Dominick and Stein

ATTORNEYS

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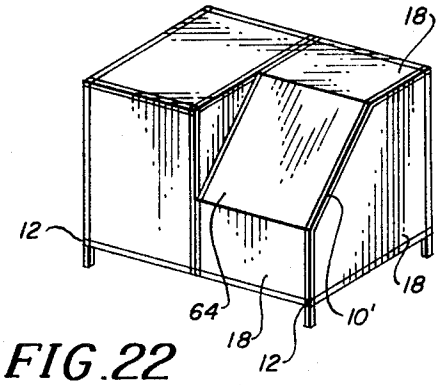


FIG. 22

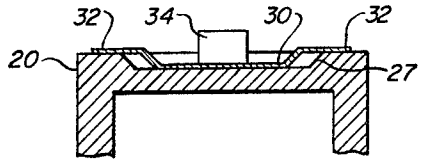
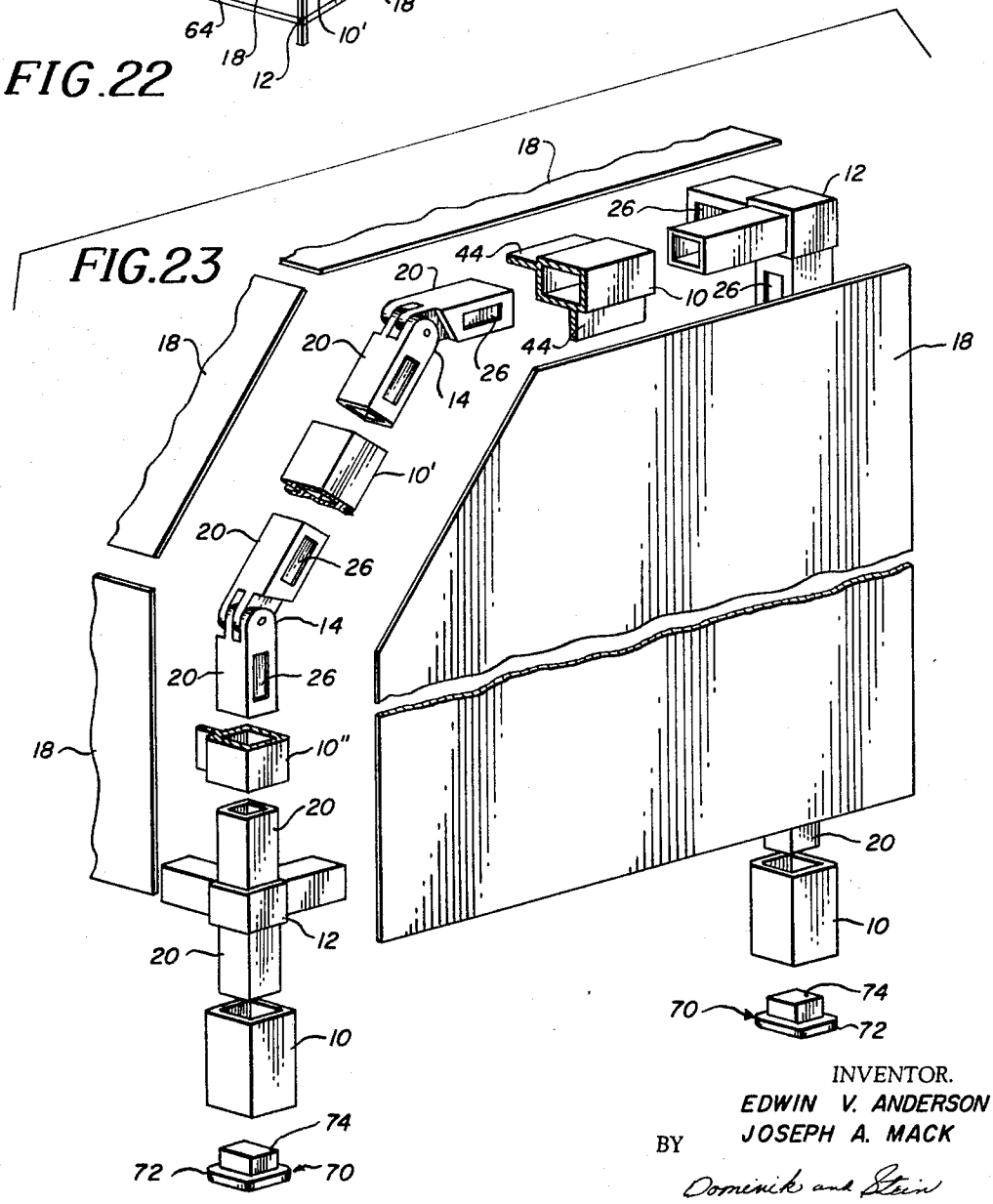


FIG. 24

FIG. 23



INVENTOR.
EDWIN V. ANDERSON
JOSEPH A. MACK
BY
Dominick and Stein
ATTORNEYS

United States Patent Office

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Patented Sept. 13, 1966

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BUILDING COMPONENTS FOR CONSTRUCTING CABINETS

Edwin V. Anderson and Joseph A. Mack, Glenview, Ill., assignors to Amco Engineering Company, Chicago, Ill., a corporation of Illinois

Filed Dec. 17, 1964, Ser. No. 419,093
14 Claims. (Cl. 312—257)

This invention relates to building components for constructing cabinets, test benches, divider walls, book shelves and the like which are particularly designed to provide greater versatility and structural support than those heretofore generally available. The invention may be classed as a "do it yourself" system since units of the above described type can be easily constructed by the man in the house and, yet, the building components are of such a design that they may be used to construct units such as instrument cabinets which must be of sturdy construction. In short, the invention is adaptable to all environments.

In U.S. Patent 3,087,768, assigned to the assignee of the present invention, an enclosure constructed using similar building components is disclosed. The building components of that patent are particularly suited to the disclosed applications, however, they do not afford the versatility and the structural support as well as the miniaturization potential of the subject matter of the present invention.

It is therefore an object of the present invention to provide new and improved building components which are particularly designed for constructing cabinets, test benches, book shelves and the like. In this respect, a related object is to provide new and improved building components which are particularly adapted for wall mounting.

It is a further object to provide building components whereby cabinets, test benches, book shelves and the like can be quickly and easily constructed, expanded, reduced, altered and matched with similar units, with minimum effort and equipment, or tools.

It is a still further object to provide building components of the above type which are attractive, lightweight and sturdy and are therefore applicable for use in the office, in the shop, airborne, in the field and in marine environments. In connection with the latter, assembly in place in submarines introduces the limitation of hatch diameter which the present invention readily accommodates for in place assembly.

It is a further object to provide building components whereby units of the above type may be manufactured from a kit, or assembled from pre-fabricated parts, or assembled by the manufacturer to the exact specification of the customer.

It is a still further object to provide building components whereby units of the above type having a sloping surface may be assembled.

It is a still further object of the invention to provide building components whereby enclosures or the like may be assembled and sealed with sealing compound or gasketed in assembly to affectuate a splash proof construction.

It is a still further object of the invention to provide building components whereby open shelf type units and closed cabinet-like units both may be easily and quickly assembled.

It is a still further object to provide an improved locking clip for maintaining the building components in assembled condition.

Further objects and advantages of the present invention will become apparent as the following description proceeds, taken in conjunction with the accompanying drawings, in which:

FIGURES 1–5 are views illustrating a desk console, a display cabinet, a shelving arrangement, a bench and a divider, or privacy screen, respectively, representative of the various units which may be constructed, using the building components of the present invention;

FIGURES 6–9 are perspective views of various interlocking building components, exemplary of the present invention;

FIGURE 10 is a perspective view of a knuckle joint, exemplary of the present invention;

FIGURE 11 is a perspective view showing a leg adjusting assembly, adapted for use with the present invention;

FIGURE 12 is a perspective view illustrating how the terminal end of a structural member may be closed;

FIGURES 13–15 are top, end and side views, respectively, of the locking clip of the present invention;

FIGURE 16 is a perspective, partial cut away view illustrating how an edge strut member of the present invention may be fixedly secured with its terminal end abutting a solid surface, such as a wall;

FIGURES 17 and 18 are sectional views illustrating how a panel member is secured to a flange on an edge strut member, by means of a clip fastener and by a nut and bolt, respectively;

FIGURE 19 is a partial perspective view of a corner of an enclosure or the like, having a panel secured thereto;

FIGURE 20 is a partial perspective view of a corner of an enclosure or the like, illustrating how gussets may be used to reinforce the enclosure structure;

FIGURE 21 is a sectional view of the corner construction of FIG. 20, taken along lines 21—21;

FIGURE 22 is a perspective view of a control board assembled using the building components of the present invention;

FIGURE 23 is an exploded, partial perspective view illustrating how the sloped surface of the control board of FIG. 22 is formed using the building components of the present invention; and

FIGURE 24 is a partial sectional view illustrating the relationship of a locking plate within a locking plate pocket.

Similar reference characters refer to similar parts throughout the views of the drawings. Also, when reference is made to a particular element or elements having the same reference character, the reference characters are primed so as to distinguish that particular element or elements.

Referring now to the drawings, in FIGS. 1–5 are shown a few of the whole host of different structures which can be assembled with the building components of the present invention. Generally, these structures are defined along their edges by means of edge struts 10 which are secured together by means of various types of interlocking members, such as the corner members 12, the knuckle joints 14 (FIG. 2) and the T-shaped members 16 (FIG. 4). Side panels may be secured to the edge struts, in a manner described hereinafter, to form closed units, such as the desk console shown in FIG. 1 and the display cabinet shown in FIG. 2, or they may be assembled in a generally open configuration, with panels forming shelves, as illustrated in FIG. 3, or tops as illustrated in FIG. 4, or walls as illustrated in FIG. 5. Furthermore, an enclosure which is splash proof may be formed by providing a gasket or sealing compound between flanges on the edge struts and the panels. Similarly, a radio frequency interference (R.F.I.) shielded enclosure can be assembled by mounting R.F.I. mesh between the flanges and the panels. As will be apparent from the description which follows, once the edge struts are cut to size, a mallet or the like is the only tool required to assemble these structures. The edge struts 10 and the various interlocking members are pref-

erably fabricated of aluminum so that a light weight, sturdy structure results.

Referring now to FIG. 6, it may be observed that the T-shaped member **16** has three legs **20** extending from a central member **22**. Each of the legs comprises a hollow body shaped to the contour of the inside of the edge struts, and the central member **22** is slightly larger than the cross section of the legs **20** so as to provide a strut abutment shoulder **24** of a width approximately the thickness of the walls of the edge struts **10**. A flush joint is thereby effected when the edge strut is slipped over the leg **20** and abutted against the shoulder **24**.

Two of the legs **20** are each formed with a locking plate pocket **26** in each of two adjacent sides, while the other two adjacent sides are planar surfaces. The third leg, indicated by the numeral **20'**, has only one locking plate pocket **26** formed in one side, while the other three sides are planar surfaces. The significance of this construction will be apparent from the description which follows. In order to firmly secure the edge struts **10** against dislocation from the legs **20** after insertion, locking plates **28** are provided which are proportioned to fit within the locking plate pockets **26**. The locking plates **28** are preferably of a sturdy and somewhat resilient material and, as may be best seen in FIGS. 13–15, have a flat body portion **30** which substantially corresponds in size with the locking plate pockets **26**. The body portion **30** has a pair of flanking offset edges or rails **32** which permit the body portion to fit within the locking plate pocket and in a substantially flush relationship thereto. The rails **32** give the locking plates substantial support, permit the locking plates when positioned within the locking plate pockets to remain in place even when tilted at a substantial angle, thereby facilitating positioning of the locking plates and assembling of the structures, and further gives quite desirable tolerance advantage to the final positioning. The body portion **30** also has a pair of upwardly bent locking tabs **34** centrally positioned between the rails **32**; which tabs project a substantial distance above the surface of the rails so that the locking tabs frictionally engage the interior surfaces of the edge struts **10** when assembled, in a fixed lock permitting dislodgement only with forces of 500 to 1000 lbs.

The above described arrangement provides positive, and true, alignment between the T-shaped member **16** and the edge struts **10**. The same is true with respect to the other interlocking members described hereinafter. This is accomplished since two of the interior surfaces of the edge struts **10** are forcibly urged by the action of the locking plates which engage its other two surfaces in a tight, sliding engagement with the flat planar surfaces of the legs **20**. The forces exerted by the locking plates are perpendicular to one another, hence the tolerances between the edge struts **10** and the legs **20** are compensated for, and at least two of the exterior surfaces of edge struts are therefore forcibly urged into positive alignment with the abutment shoulders **24**. The T-shaped member **16** is accordingly arranged, or used, with the locking plates **28** positioned toward the interior of the structure so that the aligned surfaces, or joint, is on the exterior of the structure.

In the case of the leg **20'**, only the surface or side of the leg opposite the side having the locking plate pocket formed therein is of importance, as far as providing a flush joint with the edge strut slipped on it. This is due to the fact that this is the only surface of the T-shaped member **16** which will face toward the exterior of the construction and is therefore the only surface which needs to be flush. Accordingly, only the locking plate pocket **26** formed in the one side or, more specifically, the locking plate **28** within that pocket, is sufficient to forcibly urge the one wall of the edge strut **10** in alignment with the shoulder abutment **24** on the exterior side of the T-shaped member **16**.

In FIGS. 7–9 are shown corner members **12** which have three, four and five legs **20**, respectively. The legs of each of these corner members also comprise a hollow body shaped to the contour of the inside of the edge struts. In FIG. 7, it is readily seen that each of the legs **20** of the corner member **12** has locking plate pockets **26** formed in two adjacent sides of each of the legs, while the other two sides of each of the legs are planar surfaces. A flush joint is therefore provided at each of the two planar sides on each of the legs **20**, in the manner described above, thus a flush corner is easily assembled, without having to re-align the edge struts, since the alignment is automatically accomplished.

The corner member **12** shown in FIG. 8 is essentially the T-shaped member **16** of FIG. 6, with the addition of another leg **20** extending perpendicularly from the central member **22**. The portion of the corner member of FIG. 8 which corresponds to the T-shaped member **16** is accordingly formed in the same manner, and the added leg has only one locking plate pocket **26** formed in the exterior surface of one side **25** thereof. When an edge strut **10** is slipped onto that leg, a flush joint is provided. With this corner member, it may be seen that two flush joints are provided on each of two legs, indicated with the numeral **20'**, and that one flush joint is provided on each of the other two legs, indicated with the numeral **20''**. In other words, a flush surface is provided on both the back-side and the bottom (as shown) of the corner member **12** of FIG. 8.

The corner member **12** of FIG. 9 is merely the extension of the corner member of FIG. 8, having still another leg, indicated by the reference numeral **20'**, added to the structure. The corresponding portion of the corner member of FIG. 9 is formed in the same manner as the corner member of FIG. 8, and the leg **20'** has only one locking plate pocket **26** formed in the one side thereof, so that, as described above, a flush joint is provided on the one surface on the back-side thereof (as shown).

It may therefore be noted that in each of the above-described cases, the locking plate pockets are formed in the two adjacent surfaces of the leg which will ultimately be on the interior of the structure so that flush exterior surfaces, or joints, are provided. And that, in some cases, for example with the legs **20''** of the corner member of FIG. 8, it is apparent that only one surface will face exteriorly of the structure, hence the locking plate pockets are formed in the leg so that the exterior surface will have a flush joint.

In FIG. 10 is shown a knuckle joint **14** which comprises two legs **20**. Each leg comprises a hollow body member shaped to the contour of the inside of the edge struts, and have the locking plate pockets **26** formed in each of three sides thereof for receiving locking plates **28**, in the manner described above. Extending from one end of the body are a pair of tabs **38** with the ends thereof having a semi-circular shape that is tangential to the sides of the body at the extreme ends thereof. One of the tabs is flush with the side of the body and the other tab is inset from the opposite side of the body to thereby provide a shoulder **40**. The knuckle joint is completed by bringing the two legs together and aligning the pin holes (not shown) which are present in all of the tabs **38** and then pivotally securing the one leg to the other by inserting a roll pin **42** or similar connector that permits rotational movement of one leg relative to the other. The amount of rotation of the leg is limited by the location of the shoulder **40**.

The shape of the basic edge strut **10** is shown in FIGS. 11, 12 and 16. In these figures, it may be noted that the edge struts are of square tubular construction having a central opening **48** which substantially corresponds to the cross section of the legs **20**. In FIGS. 17–21 are shown other edge strut constructions which have one or two side flanges **44** formed thereon for securing side panels to the edge struts, in a manner described more fully hereinafter. Generally, the flanges **44** are spaced so that a

flush joint is provided with the surface of the edge strut when the panel is secured to the flange.

The edge struts are preferably extruded so that they may be easily and inexpensively fabricated. Also, being extruded, the dimensions are uniform, hence tolerances may be maintained so that flush joints are provided. The edge struts are also preferably of aluminum so that they are light in weight and yet sturdy. The edge struts can be supplied in any suitable length and cut to desired size, or they may be pre-cut, as specified.

Referring now to FIG. 19 which shows the construction of a corner of an enclosure or the like, a corner member 12, such as shown in FIG. 7, is first assembled with locking plates 28 in the locking plate pockets formed in the legs 20 thereof (only the locking plates 28 in one leg 20 are visible since edge struts are shown slipped onto the other two legs of the corner member). It may be noted that the rails 32, in most cases, hold the locking plates 28 within the locking plate pockets 26 so that assembly is more easily accomplished. No additional holding means are generally required, even though the locking plates may be received in a locking plate pocket on a vertical surface, as illustrated. The locking plates are positioned within the locking plate pockets, with the ends of the tabs 38 facing the central member 22 of the corner member so that the edge struts are more easily slipped on to the legs 20. Also, in this position, the tabs 38 have far more frictional engagement with the edge struts when being disassembled, hence the edge struts are less likely to become dislodged when assembled. After assembling the corner member as described, the edge struts are slipped onto the legs 20, by striking the ends with a mallet or the like.

In the case of a corner, an edge strut of the type having a pair of side flanges 44 is advantageously used for the corner edge, in conjunction with a pair of edge struts of the type having a single side flange. The flanges are provided with beveled ends 50 so that when mated a continuous flange is formed. A closure, or side, panel 18 can be secured to the flanges 44 of the edge struts by forming holes in the flanges and the panels for receiving a fastener, such as the nut and bolt assembly 52.

In FIGS. 17 and 18 it may be noted that two different arrangements can be used to secure the closure panels 18 to the flanges 44. In FIG. 17, a spring clip 54 which is adapted to threadably receive a bolt 56 is frictionally held by the resiliency of the clip, over the bolt receiving hole formed in the flange 44. The bolt 56 is then merely passed through the corresponding hole in the panel 18 and threaded into the spring clip 54. The flange is spaced so as to compensate for the thickness of the spring clip 54, so that a flush surface is provided. This type of arrangement can be used advantageously when access to the interior is restricted, so that a nut cannot be conveniently used to secure the panel to the flange. In FIG. 18, a nut and bolt assembly 58 is used and, in this case, the bolt is merely passed through the corresponding holes formed in the flange and the panel and secured with the nut. In each of the above cases, the panel is preferably counter-sunk and a counter-sunk bolt is used, so that a flush exterior surface is provided.

In FIGS. 20 and 21 is shown still another way in which a corner of an enclosure may be constructed. It may be noted that with the exception of the gussets 60 the construction is the same as that of FIG. 19. In the case of the corner of FIGS. 20 and 21, a triangular-shaped gusset 60 is abutted against the interior surface of the flanges 44, with its apex in the corner formed by the mated edge struts 10. The panels 18 and the gussets 60 are both secured to the flanges by means of nut and bolt assemblies 62. This construction is advantageously used when a reinforced structure which will withstand severe shock and vibration is desired.

In FIG. 22 is shown a structure which may be a control board or the like, having a sloped surface 64. Also, the structure is completely enclosed by means of closure, or side panels. The majority of the structure is constructed in the manner described above, by means of the interlocking members shown in FIGS. 6–9, edge struts 10 and panels 18, and the sloped surface 64 is constructed as shown in FIG. 23 which is an exploded view of one side of the structure, with a number of the elements being only partially shown. Also, for the sake of clarity, the locking plates 28 which are fitted into the locking plate pockets 26 formed in the legs 20 have not been shown. The sloped surface 64 is constructed by first slipping a cut to size edge strut 10 having two side flanges 44 over the leg 20 of the uppermost corner member 12 which is of the type shown in FIG. 7. Next, one leg 20 of the knuckle joint 14 is slipped into the opposite end of the edge strut. A second edge strut, referenced as 10′, of the same shape as the first edge strut is next slipped over the other leg 20 of the knuckle joint. Next, one leg 20 of a second knuckle joint, referenced as 14′, is slipped into the opposite end of the second edge strut 10′. A third edge strut, referenced as 10″, is then slipped over the leg 20 of the corner member 12 which is of the type shown in FIG. 9, and the free leg 20 of the knuckle joint 14′ then pivoted and slipped into the open end of the edge strut 10″. By constructing the sloped surface 64 as described, the legs are easily slipped into the edge struts and the angular relationship of the legs of the knuckle joints 14 and 14′ with respect to one another is automatically formed since the knuckle joints are forced to conform to the angle defined by the length of the edge struts. The opposite side of the sloped surface 64 is formed in the same manner. The closure panels 18 are then secured to the flanges of the edge struts, in the manner described above, to enclose the structure.

Legs may be added to the structure, as shown, by cutting edge struts to the appropriate length corresponding to the height at which it is desired to have the structure elevated above the floor, or ground, and slipping these edge struts over the legs 20 of the lower corner members 12, as shown. An end closing cap 70 of the type illustrated in FIG. 12, having an enlarged body portion 72 and a smaller stud portion 74 which conforms to the contour of the hollow interior of the edge struts may be secured to the lower end of the edge struts by slipping the stud portion 74 into the end of the edge strut. The end closing cap 70 may be of nylon or rubber, to prevent marring of the floor or to prevent the structure from being easily slid across the floor.

A leg leveler 76 of the type shown in FIG. 11 can also be used. The leg leveler 76 has a strut engaging portion 78 which is substantially identical to the end closing cap 70, having an enlarged body portion 80 and a stud portion 82 which is adapted to be slipped into the end of an edge strut 10, as shown. The strut engaging portion 78 has a threaded aperture (not shown) for receiving one end of a threaded screw 84. The opposite end of the screw 84 is fixedly secured to an enlarged circular shaped member 86 which may be of nylon, rubber or like materials. Leveling is accomplished by rotating the member 86 to thread the screw 84 into or out of the portion 78. A lock nut 88 may be provided on the screw 84, for locking the assembly in a fixed position, in the well known manner.

In FIG. 16 is shown one manner in which the end of an edge strut 10 can be fixed to a solid surface, such as a wall 90. A hollow tubular retaining member 92 having the shape of the contour of the interior of an edge strut 10 is first secured to the wall 90 by means of a screw 94 which may be of the self-locking type. Once secured thereto, the end of the edge strut 10 is merely slipped over the member 92. If there is a possibility of the end strut being dislodged, the member 92 can be lengthened and formed with locking plate pockets therein for receiving locking plates 28. The locking plates will frictionally

secure the edge strut to the member **92**, in the manner previously described.

A radio frequency interference (R.F.I.) shielded enclosure is easily constructed by merely adding R.F.I. mesh adjacent the closure panels **18**, by mounting the mesh between the flanges **44** and the panels. A splash proof enclosure can also be constructed by bonding a gasketing material to the flanges **44** before the panels are secured to them, or by sealing all of the cracks in the enclosure with an appropriate sealing compound.

It will be apparent from the above description that additional, differently shaped interlocking members can be easily provided by adding or removing one or more legs. An obvious example of an additional interlocking member is illustrated in FIG. 5, wherein an L-shaped interlocking member **100** is used to form the two upper end corners of the divider, or privacy screen. The L-shaped member **100** corresponds to the corner member **12** of FIG. 7, with its one leg **20** removed. Still another obvious modification is to add still another leg **20** to the corner member **12** of FIG. 9 so that a six legged corner member is provided. Other modifications are likewise obvious.

In review it will be apparent from the above description of the edge struts and the interlocking members that any one of the illustrated structures, as well as a whole host of differently shaped structures, can be easily constructed with a minimum effort and using only a miter box to cut the edge struts to size, if they have not been pre-cut to size before delivery, and a mallet or the like to assemble the edge struts and the interlocking members. As previously indicated, the edge struts and the interlocking members are fabricated of aluminum, either by extruding or by casting them, hence light weight and sturdy structures can be constructed. The structures can also be disassembled easily, and additions at a later date are simple and practical. With the addition of side panels and appropriate gasketing or sealing material splash proof structures can be provided, or by the addition of R.F.I. meshing, a shielded enclosure can be provided.

As exemplary of the miniaturization achieved, a successful commercial embodiment employs struts of the following dimensions: ¾″ x ¾″, with a wall thickness of approximately .069″ and cut to length, as required. The flanges are approximately ⅛″ thick and ⅝″ in length, being offset either .069″, .135″ or .312″, to accommodate the various types of fasteners and to provide properly spaced side walls. The typical T-shape member **16** (FIG. 6) has the following dimensions: the central member **22** is approximately ¾″ x ¾″ x ¾″ and the legs **20** are approximately ⅝″ x ⅝″ x 1 7/16″, having locking plate pockets formed therein which are approximately ⅜″ (tapered to approximately 5/16″ at the bottom) x 13/16″ x .040″. The locking plates measure approximately 1 7/32″ x 13/16″ overall and have a central body portion **30** measuring 19/64″ x 13/16″. The locking tabs **34** are .187″ x 13/64″ and are angled upwardly at an angle of 45° so as to project approximately .052″ above the surface of the edges or rails **32**. The dimensions of the other corner members **12** are correspondingly scaled.

In FIG. 24, the relationship between the locking plates **28** and the locking plates pockets **26** is shown. In viewing this figure, it may be noted that the side walls **27** of the locking plate pockets **26** are tapered inwardly toward their bottom walls, at an angle which substantially corresponds to the angle at which the side walls of the locking plates are extended to the flanking offset edges or rails **32**. In the illustrated embodiment this angle is approximately 45°. The central body portion **30** of the locking plates **28** is substantially smaller than the spacing between the tapered side walls **27**, so that the locking plates are self-centering, to a degree, when the edge struts are slipped over the legs **20**. The depth of the locking plate pockets is equal to the thickness of the locking plates, measured from the bottom of the central body portion **30** to the underside of the flanking offset edges or rails **32**, so that the bottom of the central body portion will rest on the bottom of the locking plate pocket with the flanking offset rails **32** resting on the face of the leg. It is apparent from the dimensions set forth above, and in viewing FIG. 19, that the length of the locking plates **28** corresponds to the length of the locking plate pockets so that the locking plates are unable to move longitudinally within the locking plate pockets. This construction, as previously indicated, gives the locking plates substantial support, permit them to remain in place even when tilted at a substantial angle, thereby facilitating assembly, and further gives quite desirable tolerance advantage to the final positioning in that the locking plates are transversely self-centering, to a degree, and are fixed against longitudinal movement.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. Building components for constructing frames, enclosures and the like comprising hollow edge struts all of uniform cross-section, the ends of each edge strut providing a female joint; interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other so as to form a corner, said legs each defining a male member adapted to be inserted in said female joints; and having recesses formed therein in each of two adjacent surfaces of predetermined ones of said legs, said recesses each having squared end walls and inwardly tapered side walls; and locking plate means disposed within said recesses, said locking plate means having a length corresponding to the length of said recesses and a central body portion with upstanding locking tabs formed therein and a pair of offset rails extending from a pair of tapered side walls, said rails being adapted to engage the surface of said legs with the central body disposed within said recesses, said body portion being smaller in width than the width of said recesses so that said locking plate means tend to center themselves within said recesses, said edge struts each being cut to a specific length and interlocked together by means of said interlocking members to form said frames, enclosures and the like.

2. Building components for constructing frames, enclosures and the like comprising hollow edge struts all of uniform cross-section, the ends of each edge strut providing a female joint; interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other, said central member being larger than the cross-section of said legs so as to provide an abutment shoulder which corresponds in height with the thickness of a wall of said hollow edge struts, said legs each having a cross-section substantially corresponding to the contour of said female joint so as to be disposable therein and recesses formed in each of two adjacent surfaces of predetermined ones of said legs which extend longitudinally along its length, said recesses each having squared end walls and inwardly tapered side walls; and locking plate means for locking said edge struts to said legs of said interlocking members, and for aligning the end edge therefore with said abutment shoulder, said locking plate means having a length corresponding to the length of said recesses and a central body portion with upstanding locking tabs formed therein

and a pair of offset rails extending from a pair of tapered side walls, said rails being adapted to engage the surface of said legs with the central body disposed within said recesses, said body portion being smaller in width than the width of said recesses so that said locking plate means tend to center themselves within said recesses.

3. Building components for constructing frames, enclosures and the like comprising hollow edge struts all of uniform cross-section, the ends of each edge strut providing a female point; interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other, said central member being larger than the cross-section of said legs so as to provide an abutment shoulder which corresponds in height with the thickness of a wall of said hollow edge struts, said legs each having a cross-section substantially corresponding to the contour of said female joint so as to be disposable therein, and having recesses formed therein in each of two adjacent surfaces of predetermined ones of said legs, said recesses each having squared end walls and inwardly tapered side walls; and locking plate means disposed in each of two adjacent surfaces of predetermined ones of said legs for locking said edge struts to said legs of interlocking members, and for aligning the end edge thereof with said abutment shoulder, said locking plate means having a length corresponding to the length of said recesses and a central body portion with upstanding locking tabs formed therein and a pair of offset rails extending from a pair of tapered side walls, said rails being adapted to engage the surface of said legs with the central body disposed within said recesses, said body portion being smaller in width than the width of said recesses so that said locking plate means tend to center themselves within said recesses.

4. Building components for constructing frames, enclosures and the like, as claimed in claim 3, further including closure panels, said edge struts having flange means along the sides thereof whereby said closure panels may be secured thereto to form one or more closed, or covered, surfaces.

5. Building components for constructing frames, enclosures and the like, as claimed in claim 3, further including pin-joined interlocking members, each of which has oppositely disposed legs defining male members adapted to be inserted in said female joints, said legs having locking plate means disposed within recesses formed in side surfaces thereof for securing edge struts thereto in a locking manner.

6. In combination with building components of the type having legs of one member inserted with the hollow interior of other members, said legs each having one or more recesses formed therein, locking plate means comprising a central body portion having upstanding yieldably rigid locking tabs formed therein and a pair of offset side rails integrally formed therewith which are adapted to engage the surface of said legs with said central body portion disposed in said recess.

7. Locking plate means according to claim 6 wherein said locking plate means are of metallic, substantially rigid materials.

8. A frame comprising a plurality of hollow edge struts all of uniform cross-section, the end of each edge strut providing a female joint; a plurality of interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other so as to form a corner, each of said legs being received within one end of one of said edge struts so as to form said frame; and a plurality of locking plate means, each received within a recess formed in each of two connected surfaces of predetermined ones of said legs and in one surface of other predetermined ones of said legs for locking said edge struts to said legs, said locking plate means having a central body portion having upstanding locking tabs formed therein and a pair of offset rails which are adapted to engage the surface of said legs with the central body portion disposed within said recess formed in said legs.

9. A frame according to claim 8, wherein the edge struts locked to predetermined ones of said legs of said interlocking members are arranged to form legs for said frame, and wherein there are further provided leveling means comprising a head portion which corresponds in size with the cross section of said edge struts so as to cover the end thereof, said head portion having a strut engaging portion adapted to be frictionally secured within the end of said edge struts, a flat base portion, and a threaded screw fixedly secured at one end to said base portion and adjustably threadably received in a threaded aperture in said head portion at its other end.

10. An enclosure comprising a plurality of hollow edge struts all of uniform cross-section, the end of each edge strut providing a female joint, flanges having apertures formed therein on the sides of said edge struts; a plurality of substantially U-shaped resilient spring clips, each having an aperture formed in each of its arms, one of which is adapted to threadably receive a threaded bolt, said spring clips being secured by the resiliency of their arms over said flanges with the apertures therein aligned with the apertures in said flanges, a plurality of interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other so as to form a corner, each of said legs being received within one end of one of said edge struts so as to form a frame for said enclosure, a plurality of locking plate means, each received within a recess formed in each of two adjacent surfaces of predetermined ones of said legs and in one surface of other predetermined ones of said legs for locking said edge struts to said legs, said locking plate means having a central body portion with upstanding locking tabs formed therein and a pair of offset rails which are adapted to engage the surface of said legs with the central body portion disposed within said recess, and a plurality of closure plates, each having corresponding apertures formed therein, said closure plates being secured to said flanges by means of threaded bolts which are passed through said apertures and threadably engaged with said spring clips.

11. An enclosure comprising a plurality of hollow edge struts all of uniform cross-section, the end of each edge strut providing a female joint, flanges having apertures formed therein on the sides of said edge struts; a plurality of interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other so as to form a corner, each of said legs being received within one end of one of said edge struts so as to form a frame for said enclosure, a plurality of locking plate means, each received within a recess formed in each of two adjacent surfaces of predetermined ones of said legs and in one surface of other predetermined ones of said legs for locking said edge struts to said legs, said locking plate means having a central body portion with upstanding locking tabs formed therein and a pair of offset rails which are adapted to engage the surface of said legs with the central body portion disposed within said recess, a plurality of closure plates, each having corresponding apertures formed therein; gusset means having apertures formed therein, said gusset means and said closure plates being secured to opposite sides of said flanges, with a gusset means in each of said corners, by means of threaded bolts which are passed through said apertures.

12. An enclosure according to claim 11, wherein said gusset means are triangular in shape.

13. An enclosure comprising a plurality of hollow edge struts all of uniform cross-section, the ends of each strut providing a female joint; flanges having apertures formed therein on the sides of said edge struts; a plurality of interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other so as to form a corner,

each of said legs being received within one end of one of said edge struts so as to form a frame for said enclosure, a plurality of locking plate means, each received within a recess formed in each of two adjacent surfaces of said legs for locking said edge struts to said legs, said locking plate means having a central body portion with upstanding locking tabs formed therein and a pair of offset rails which are adapted to engage the surface of said legs with the central body portion disposed within said recess; a plurality of closure plates, each having corresponding apertures formed therein, secured to said flanges by means of fastening means passed through said apertures; and radio frequency interference mesh included between said closure panels and said flanges.

14. Building components for constructing frames, enclosures and the like comprising hollow edge struts all of uniform cross-section, the ends of each edge strut providing a female joint; interlocking members having a central member with a plurality of legs extending perpendicularly therefrom and disposed at fixed angles to each other so as to form a corner, said legs each defining a male member adapted to be inserted in said female joints; locking plate means disposed within said recesses formed in each of two adjacent surfaces of said legs for locking said edge struts to said interlocking members, said locking plate means having a central body portion with upstanding locking tabs formed therein and a pair of offset rails

which are adapted to engage the surface of said legs with the central body portion disposed within said recess, said edge struts each being cut to a specific length and interlocked together by means of said interlocking members to form said frames, enclosures and the like; and means for securing the end of an edge strut to a wall and the like comprising a box-shaped member having a cross-section which substantially corresponds to the cross section of said edge struts so that it may be frictionally engaged therein and having an aperture formed therein, and fastener means passed through said aperture for fixedly securing said box-shaped member to said wall.

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CLAUDE A. LE ROY, *Primary Examiner.*

F. DOMOTOR, *Assistant Examiner.*