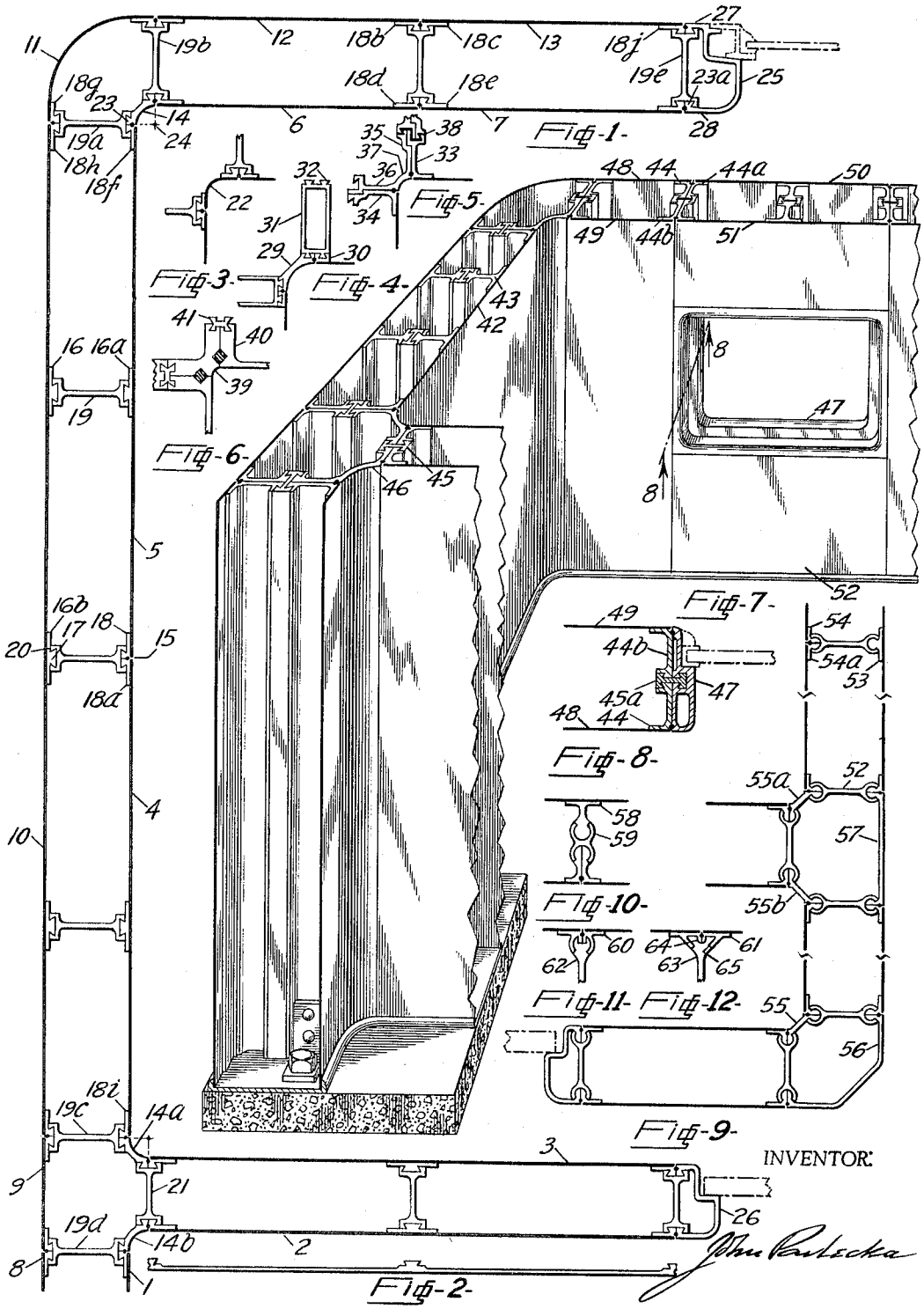
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INTERLOCKED PANEL STRUCTURE

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INTERLOCKED PANEL STRUCTURE

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The panel wall structure of this invention embodies wall intersection transition members disclosed in my Patent No. 3,184,013 which issued from application No. 318,692, filed November 4, 1952, of which application the subject matter of this disclosure is a continuation-in-part; this subject matter is related to that in my Patent No. 3,279,137 wherein the opposite panel units are key-locked to interposed structural members instead of directly to one another. The subject wall structure employs the terminal members and any of the species of the linear interlocking keys and engaging formations therefor as disclosed in my allowed applications Nos. 400,116 and 423,887 for Interlocked Hollow Panel Structure and Interlocked Panel Structure, respectively, which will issue as patents in 1967, and as disclosed in my Patents Nos. 3,012,636, 3,037,590, 3,160,245, 3,160,249, 3,184,-013, 3,185,267 and 3,191,726.

This invention relates to hollow wall structures assembled of panel units by linear keys in a slidable engagement with keying formations or stringers on them, and more particularly relates to a complete structure of this type in which transition members between angular walls, and terminal members at doors and windows in the walls, are key-locked to the panel units. This invention is applicable primarily to full size houses and buildings, and also to miniature replicas thereof for use as toys.

One object of this invention is a hollow wall structure assembled of modular panel units, corner transition members, and terminal members, by slidably endwise inserted linear keys or keying members, to form any plan of walls with L- and T-intersections in them, all of which components carry keying formations on them, the proportions between which formations and the keys or keying members being variable within the wall width in different embodiments.

Another object is a structure of hollow walls and their intersections comprising a thin shell and modularly spaced supporting stress members or studs therein, the shell being assembled of modularly wide panels of the minimal practicable thickness for any particular metallic or synthetic material, and the stress members being provided by a coaction of keying formations or stringers on the panels with linear interlocking keys in a lateral and frontal slidable engagement and marginal abutment therewith, such stress members at the wall intersections, in coaction with transition panels or members which effect wall juncture, providing box stress members thereat.

Another object is a hollow wall structure of interlocked panel units on which intermediate stringers apart from the edges and juxtaposed edge stringers carry equivalent keying formations, and these are key-locked in opposition one type with either the same type, or with the other type, for the novel and useful results of obtaining the three basic panel unions necessary for a wall structure, i.e., apart from the edges, at coincident edges, and at non-coincident edges in the wall sides, for indiscriminate or planned occurrence of these edge relationships or parting lines in the wall sides, and for compatible use of panel units of the same and different modular widths for assembling walls of any predetermined length.

Another object is a hollow wall structure wherein equivalent intermediate and juxtaposed keying formations are used as the only types for assembling panel units into walls, transition members for constructing intersections between walls, and terminal members to the wall ends for doors and windows thereat.

Another object is the use of transition members between straight walls for connecting them at right angles to each other, the members being interlocked with the walls by the same linear keys that lock the panel units in them together, and the members are of substantial thickness whereby they coact with the key-locked parts in the walls and cause these parts in the right-angle walls to coact with each other as principal stress members at the wall juncutre.

Another object is the provision of marginal lands along and by the side of the keying formations or stringers of the aforementioned two types, used on the panel units, the transition members and the terminal members, for abutment either directly between the opposed formations or stringers, or with the linear keys in engagement with these parts for augmenting their relative immobility and coaction as unitary stress members.

An object of importance is the provision in the structure above outlined of linear interlocking keys of certain species that completely separate the interlocked parts, and by being made of heat non-conductive material will function as insulators against heat and sound transfer through the walls.

The parts and their organization for realizing these and certain other useful results will be disclosed first in relation to all the figures in the drawing forming a part of this specification, and then with detail reference to it.

The structure of this invention is predicated on the principle of fabricating panel units with stringers or keying formations as integral parts thereof, and locking them to each other relatively immovably by slidably engaging linear keys of anyone of a number of cross-sectional species and sizes; the stringers and the keys jointly provide principal stress members in the shell created by them for the panel units.

The complete structure as a single product is a combination of several related inventions, including that of the organization of the hollow wall construction from modular panel units, of the configuration and incorporation of the transition members between angular walls, of the integration of the terminal members into the walls, of the interlocked and abutted unions of the parts by means of the linear keys, etc., which constructions and subcombinations are usable separately in other applications and products; jointly, they produce the useful structure of this invention as a new product because in it they cooperate with each other for its utility as well as its simplicity by making use of duplicate stringers, linear keys, transition members, terminal members, and even many of the panel units.

The straight walls between their intersections are assembled of panel units—also referred to as "panels"—which are made up of sheets or plates of modular widths, and of stringers or keying formation of two types; the intermediate type extends on the panel units apart from the edges or parting lines thereof, and on panels wider than two modules a number of such stringers extend at modular intervals apart from each other; stringers of the edge type extend at and along the panel edges; besides functioning in their normal way as auxiliary stress members, the stringers carry on them mortise and tenon formations by means of which they and their panel units are interlocked into unity both in adjoining and in spaced apart facing relationship; the mortise and tenon formations can be of several species, all of which are engaged by endwise inserted linear keys of conforming shape; in the unions of the stringers with the keys two extreme cases of their relative size are possible, either one of which may be preferred in certain embodiments; first, the stringers are of a low height and the linear keys occupy the distance between them with a profile which includes mortise and tenon formations at the opposite ends, and one or two webs intervening therebetween; the other case is that of

tall stringers in close proximity of each other's formations, the key being reduced cross-sectionally to a central web on both sides of which are carried the formations in engagement with the stringers.

Irrespective of the relative proportions of the stringers and the keys, these parts are devised to coact in certain ways, one being for relative immobility and consequent ability to resist stresses in unison as a single member; this is brought about mainly by abutment lands along and by the side of respective mortise and tenon formations; such lands are provided by shoulders and ledges in opposition to each other; this opposition may be actual contact of the stringers for abutment directly with each other, or it may preferably be spaced apart opposition of the stringers with the key interposed between their marginal lands so that they both abut against the key and through it with each other.

Another vital coaction assigned to the stringers is that between the two types of them by the novel though simple device of making each two edge stringers in juxtaposition at a parting line carry mortise and tenon formations which jointly represent an equivalent of the formations on one intermediate stringer; by this device it is possible for the two stringer types to occur on the facing panel rows in a wall in either planned or indiscriminate opposition of one type with either the same type, or with the other one, so that three different and basic relationships and panel unions are obtained from only those two types, to wit, intermediate stringers keyed in opposition to each other apart from the parting lines, two pairs of edge type stringers at coincident parting lines, and one intermediate and two edge type stringers at non-coincident parting lines.

This permutation at random or by design of the two equivalent stringer or keying formation types produces hitherto non-existent results in that panel units of different modular width can be assembled compatibly with each other in adjoining as well as in facing relationships in a wall, the panel parting lines can be either coincident or non-coincident by design or at random; the parting lines can occur at any one interval or be eliminated from locations where objectionable, and an assembler does not have to do any cutting, fabricating or fitting together non-conforming panels in order to obtain a wall of a certain length.

Equally essential to a panel wall successful construction as that of the straight courses is the construction of intersections of right-angle courses, and in order to construct both L- and T-intersections of the same stringers and linear keys as used on the panel units in the walls, and in order to prevent the panel units from meeting edge-to-edge at right angles to each other in a corner where edge misalinement would be likely to result in an uneven contact and gaps, and also in order to obtain filleted or cove corners in rooms, transition members are employed at the inner wall corners at both the L- and T-intersections; their profile is a quadrantal segment which is formed or provided with mortise and tenon keying formations at and along two right-angle planes, the formations being equal to those on one edge stringer, and are connected by a web or body which may be of a short or extended span; this is determined by the location of the point or apex of intersection of the two quadrantal planes, which location is exteriorly of the walls at a distance from both of them; each transition is interlocked with the edge stringers in juxtaposition to its own on the wall panel units by one of the linear keys in each of the quadrantal planes; one transition at the L- and two at the T-intersection effect their construction at the inner wall sides in cooperation with the wall and partition panel units, their stringers and linear keys or keying members.

At the outer wall side at the T-intersection a panel unit, which need not be modular, complements the panel rows between their ends at two parallel planes pertaining each to one pair of the quadrantal inner transition planes, and is either keyed to those rows at parting lines thereat, or it may be provided by one continuous panel unit crossing the intersection; at the L-intersection, the outer wall sides are complemented by another transition member between the same two quadrantal planes as the inner one, which member is preferably shaped to form a rounded or beveled corner, and is interlocked with the right-angle outer panel units by the same keys or keying members which lock the inner transition to them. Both the inner and the outer transitions at the L-intersection, and the inner transitions and the complemental panel unit at the T-intersection, may be panel units; however, intersections are the most important locations affecting the stability and rigidity of a wall structure, and both the inner and the outer members in them should preferably be of a thickness greater than the normal thickness of the wall panels; by their rigidity so obtained they are capable of cooperating with the panel stringers and with the keying members as unitary stress members and moreover, jointly with them form a tubular or box stress member at both intersections of a large section modulus and moment of inertia.

Wherever walls are interrupted by openings for door and window frames, terminal members in the form of jams as parts of such frames are embodied in them; each terminal member has a transverse web across a wall, and two sides meeting two panel units, and has mortise and tenon keying formations in juxtaposition to those on the panel units, and one of the linear keys or keying members locks them together.

Embodiments of complete wall structures and modified components of them are illustrated in the accompanying drawing, and are described herebelow; the drawing represents as follows:

FIG. 1 is a plan view of a major portion of a wall structure assembled of panel units, terminal members, and transition members at the wall intersections, by means of keying formations or stringers on these parts and linear keys or keying members in engagement therewith;

FIG. 2 is an end view of a panel unit produced in one piece as an alternative to the composite panel units shown in FIG. 1;

FIG. 3 is a transition member and keying formations thereon, produced as a panel unit and a variant of the transition moldings shown in FIG. 1;

FIG. 4 is an end view of a transition member keyed to the associated panel units by keying members, the keying formations on these parts being of multiple mortise and tenon species;

FIG. 5 is an end view of a transition member and tall stringers thereon and on adjoining panel units, and keyed to each other and to opposite stringers by linear keys of the unsymmetrical blocking species;

FIG. 6 is an end view of a union of a transition member and adjoining panel units by means of tall stringers and linear keys of the dual-tenon spline species;

FIG. 7 is a perspective view of a portion of a wall structure with terminal members and transition members, these parts and the panel units being provided with tall stringers interlocked in juxtaposition and opposition with each other by keys of the mortised species;

FIG. 8 is a cross-section through a window frame in the wall of FIG. 7 at a location indicated by 8—8 therein, and showing a window jamb key-locked to the wall;

FIG. 9 is a plan view of a wall structure analogous to that of FIG. 1 but employing bulbous mortises and tenon on the interlocked parts, transition members in the form of splay moldings, and outer wall side panel units of increased thickness at both the L- and T-intersections;

FIG. 10 shows tall stringers interlocked by linear keys of a minimal profile in distinction to the low stringers and maximal profile keying members of FIG. 9;

FIGS. 11 and 12 are fragmentary views of key-locked stringers which are formed with mortises, and the keys

carry tenons on them, the latter being grooved for a lateral lock of the juxtaposed stringers; abutment lands extend along and by the side of these formations on the opposite parts.

In FIG. 1 panel units 1, 2, 3, 4–5 and 6–7 form the inner sides, and panel units 8–13 form the outer sides of a peripheral wall and of a partition wall merging with it; the inner corners of an L- and of a T-intersection in the walls are occupied by respective transition members 14, 14*a* and 14*b*; the panel units meet with each other and with the transition members at parting lines 15 in tight contact; for representation in the drawing, these lines are shown as gaps in the walls. The panel units are preferably of modular widths as a requisite for obtaining certain useful results pointed out hereinfurther; the term "panel unit" denotes a panel and stringers or keying formations integral with it, even though "panel" is often used hereinafter for brevity.

The panel units are manufactured either from sheets or plates with the stringers or keying formations affixed to them permanently, or they may be produced by extrusion in one piece with the stringers and formations, as shown in FIG. 2; the composite panel units employing flanged stringers or formations make the use of thin metallic or synthetic panels practicable. Each panel unit wider than one module has a stringer 16, or any larger number thereof, extending at modular intervals apart from its edges and from each other; stringers are normally auxiliary stress members, and are used as such in this structure, and are made use of also as carriers of keying or interlocking formations; for attachment to the panels by adhesive bonding or resistance welding, the stringers are provided with flanges which perform the additional functions of minimizing stress concentration in thin panels, and for providing abutment lands for the opposite key-locked parts.

Between their flanges, the intermediate stringers 16 are formed with a reentrant tenon 17, such as of the dovetail shape; at and along each edge or parting line there extend on each panel unit stringers 18 each of which has the profile of one lateral half of the stringer 16, i.e., an attaching flange and a half-tenon thereon and reentrant on the side away from the edge; two such stringers of the "edge" type juxtaposed to each other on two meeting panels represent an equivalent of one intermediate stringer keying formations and flanges therealong. The two stringer types occur, in their modular spacing on the facing or overlapping panel units, in opposition to one another, and are locked together frontally, and each two juxtaposed edge stringers are locked together laterally, by linear keys or keying members 19.

Stringer equivalency at panel edges and apart therefrom would ordinarily result only in identity of all of the keying members 19; in this embodiment additional and vital results are obtained from the stringer equivalency in combination with the stringer modular spacing; the immediate consequence of that combination is that the two stringer types can appear each at any one interval in opposition to either the same type, or to the other type, and thus provide the three basic panel unions necessary for assembly of panel walls of any length and with doors and windows in preferred locations; two intermediate stringers 16 and 16*a* key-locked in opposition with each other unite the panels apart from their parting lines; two pairs of juxtaposed edge stringers 18*b*–18*c* and 18*d*–18*e* unite four panels at coincident parting lines, and one intermediate stringer 16*b* and two edge stringers 18–18*a* unite three panels at a non-coincident parting line. The far-reaching consequences of these three unions, available from only two stringer types, reside in that the panel units can be of different modular widths, all of them are compatibly associable with one another at each interval, the parting lines can appear by chance or by plan at any one interval and can thus be eliminated from locations where not wanted, and the parting lines in the facing panel rows can occur independently of one another in either coincident or non-coincident relationship.

The keying members 19 are studs of a profile equal to nearly the whole width of the wall; the profile includes a web and a lengthwise reentrant mortise in each profile extremity between two frontal lands or marginal shoulders 20; the mortise is in a slidable engagement with either the tenon 17 of an intermediate stringer, or with the combined half-tenons of two juxtaposed edge stringers, and the lands therealong are in contiguity with opposite lands on the stringers along and by the side of their tenons and half-tenons for abutment therewith; by being carried on the stringer flanges, these abutment lands are located at a distance from the panels, thereby protecting thin panels against stress concentration and insuring that contact will take place because the varying thickness of adhesive bond between the stringers and the panel face is rendered inconsequential; abutment between the stringers and the keying members takes place either initially due to manufacturing tolerances, or under strain due to external loading, and the parts so abutted with each other coact as a single stress member for the panels and the structure.

The construction of the wall intersections makes use of the modularly placed keying members 19*a* and 19*b* at the L-intersection and 19*c*, 19*d* and 21 at the T, which members are all interjacent the ends of the walls at coincident parting lines next to the intersections; at the L-intersection, transition member 14 is in coplanar continuity with the inner row panel units 5 and 6, and at the outer row panel unit 11 complements the wall sides between panel units 10 and 12 and functions as a transition member thereat; the wall and transition member parting lines lie in two planes of a quadrant the apex 24 of which is located exteriorly of the inner wall sides and distantly from each of them; the inner member 14 has half-tenon 23 thereon in juxtaposition to those on stringers 18*f* on the convergent wall panels, and has a ledge along each half-tenon corresponding to the one on the stringer flange; similarly, the outer member 11 has edge type stringers 18*g* thereon juxtaposed to panel stringers 18*h*, whereby four sets of keying formations key-locked by two keying members, and two transition members, create the intersection from parts mostly duplicate of those in the walls.

The transition member 14 can also be a panel unit, as shown at 22 in FIG. 3, with edge stringers at two right-angle edges; inasmuch as the function of the transition is not merely that of one of the panels, but to constrain the wall sides relatively immovably and inflexibly as a keystone, it is preferably made with a substantial section between the abutment lands thereof, of a thickness greater than the normal thickness of the wall panels; when made so rigid, the transition 14 acts as a base for the keying members 19*a* and 19*b* by its relatively immobile abutment with them, and causes them to coact with each other as a single principal stress member in this vital location. Besides its strength, the transition contributes to the utility and appearance of the structure by having at least the central portion of its exterior face curvilinear to form a cove in the room corners; the arc of the cove may be formed around a center which coincides with the quadrantal plane apex 24 for flush alinement with the panels at the parting lines.

At the T-intersection, transition members 14*a* and 14*b* and the keying members 19*c*, 19*d* and 21, together with the wall panel stringers 18*i*, lie in or next to two pairs of quadrantal planes the apex of each of which pair is located exteriorly between the walls, identically as the apex 24 at the L-intersection; similarly as there, one panel unit, 9 in this case, complements the outer wall panel row at the T.

At door and window openings the walls are closed off by terminal members in the form of jambs 25 and 26 of door and window frames; both jambs have lateral webs 27 and 28 in continuity with two coterminous panel units, and a cross-web shaped to accommodate a door or a

window; panel stringers **18***j* and terminal member keying formations **23***a*, with abutment lands along and by the side of both of them, are in an engagement and abutment with one of the wall keying members **19***e*.

Numerous modifications in the shape and proportions of the above disclosed components of the wall structure are feasible, and the next figures represent some of them; in FIG. 4, transition member **29** in the inner wall sides at both the L- and T-intersections, as well as the panel stringers **30**, have each one reentrant mortise in them, and are locked together by keying members **31** with two reentrant tenons **32** on each profile extremity; abutment lands extend along and by the side of the tenons in contiguity with marginal lands on both the transition **29** and stringers **30**.

While the keying members **19** in FIG. 1 and **31** in FIG. 4, of a profile nearly as wide as the walls, are in engagement with the stringers reduced in height accordingly, these proportions can be reversed and tall stringers employed and interlocked by keys whose profile consists of a relatively thin web and reentrant mortise and tenon formations on both sides of it; the effect is the same, i.e., the tall stringers so keyed together and abutted with the key relatively immovably function as a single stress member in the wall. Stringers **33** and **34** of this size in FIG. 5 include attaching flanges on the respective panels, and a standing web which carries keying formations and a marginal land therealong; webs **35** and **36**, and formations and lands thereon form parts of transition member **37** next to two quadrantal planes and to the stringers **33** and **34** thereat; the keying formations conform to a key **38** which is of the blocking species of an unsymmetrical profile disclosed in my copending application Serial No. 423,887; for the lateral locking by this key, the dividing plane through the keying formations is offset from the parting line plane so that it bisects one tenon; the result is that the opposed intermediate stringers are identical with each other, as is each pair of juxtaposed edge stringers **33–35** and **34–36**, and congruent with each other in opposition; the mortise and tenon formations on the stringers have oversize mortises into which the tenons enter frontally, and the keys **38** are slid endwise into the clearance between them and between their marginal lands.

In the union of a transition member **39** in FIG. 6 tall stringers **40** are interlocked with those on the member by linear keys **41** of the species of dual-tenon splines disclosed in my Patent No. 3,185,267; these keys engage the parts frontally by the reentrant tenon sides, and laterally by grooves running lengthwise in the tenons.

A wall structure embodying all the necessary constructions using tall stringers is shown in FIG. 7; panel units **42** have flanged single-web intermediate stringers **43** and juxtaposed edge stringers **44–44***a* on them, locked in opposed and side-by-side relationships by linear keys **45**; these are of the species disclosed in my application Serial No. 400,116; this species is distinguished by the same keying formations, i.e., reentrant mortises and marginal shoulders therealong, as on the keying members **19** in FIG. 1, carried in this case on a relatively thin central web; identical transition members **46** at both the L- and T-intersections have arcuate webs of a thickness greater than the wall panels, and at each quadrantal plane carry standing webs and keying formations thereon like those on the edge stringers to which they are juxtaposed and key-locked; terminal members such as the window jamb **47**, shown also in FIG. 8, are formed with two opposed half-mortises and flat lands therealong for engagement by one of the keys **45***a* in juxtaposition to edge stringers **44–44***b* on the facing wall panels **48** and **49**; the key **45***a* also locks panel units **50** and **51** above the window, and two other panel units **52** below it, in continuity with the panel units **48** and **49**.

The same organization and analogous parts distinguish the wall structure of FIG. 9 as they do those of FIGS. 1 and 7; the linear keys **52** are of an elongated profile complemented by low stringers **53** and **54–54***a*, the keying formations on them being basically the same species as in FIG. 1 except of a bulbous shape; marginal lands along and by the side of these formations provide for abutment of the parts against each other; transition members **55**, **55***a* and **55***b* which link together the angular walls at the L- and T-intersections, have portions in flush continuity with the wall panels and between them have beveled face whereby they provide splay moldings in the room corners; a like inner face forms a web with the exterior face of a thickness greater than that of the wall panels; an important innovation resides in that the transition panel unit **56** at the L-intersection, and unit **57** at the T, have both a thickness greater than the wall panels; they not only eliminate the weakness of the outer panel row at these locations, but because of their rigidity are competent to cooperate with the interlocked parts in forming a tubular or box stress member at each intersection such as is vital in lower floors of buildings.

In FIG. 10 reversed proportions of the linear keys and stringers in distinction to those of FIG. 9, i.e., tall stringers **58** of the two equivalent types, and a reduced key crosswise dimension result in a key **59** with two bulbous mortises and a separating web.

To the scope of the various keying formations contemplated for the interlocked parts of the structure of this invention belong those in FIGS. 11 and 12 with a reversed mortise and tenon arrangement; the stringers **60** and **61** in the respective unions are formed with mortises, and the linear keys **62** and **63** have tenons in frontal engagement therewith; for lateral engagement with each two juxtaposed edge stringers the key tenons are grooved lengthwise and fit over ridges **64** on the stringers; this is analogous the manner in which the spline **41** in FIG. 6 interlocks the parts; abutment lands **65** along and by the side of the parts stabilize them and constrain them to function as a single stress member.

I claim:

1. In a wall structure, two angularly related panel units convergent to an intersection having parting lines spaced apart from each other thereat, a transition member occupying the quadrantal span between said parting lines, a pair of juxtaposed reentrant mortise and tenon formations extending on the inward face of each panel unit and on said transition member at and along each of said parting lines, flat lands extending along and by the side of each pair of said formations on said panel units and transition member, said lands along each pair of said formations extending in a distanced relationship to the panel unit inward face, and two linear keys bearing reentrant mortise and tenon formations, flat lands borne on said keys along and by the side of said formations, each key being in a slidable frontal and lateral engagement with one pair of said panel unit and transition member formations and said key lands being in contiguity with said lands along and by the side of each pair distantly from each panel unit face.

2. In a wall structure as set forth in claim **1**, said transition member having an inward face between said borne lands along and by the side of said formations thereof, and having an exterior face in coplanar alinement with said panel units at said parting lines, said inward and said exterior face forming a section of a thickness greater than the normal thickness of said panel units.

3. In a wall structure as set forth in claim **1**, said transition member having a curvilinear inward face between said lands borne along and by the side of said formations thereof, and having an exterior curvilinear face forming a cove section of a thickness greater than the normal thickness of said panel units.

4. In a structure according to claim **1**, stringers extending on said panel units and bearing said reentrant formations thereon, flanges as a part of said stringers secured to said panel units along and by the side of said formations, said flanges having an outer face and providing said

panel unit distanced lands thereby and each flange being in said contiguity thereat with one of said key lands.

5. In a structure according to claim 1, stringers extending on said panel units, flanges as a part of said stringers secured to the respective panel units, webs standing on said stringer flanges and bearing said panel unit reentrant formations thereon and bearing one of said lands along and by the side of each of said formations in said distanced relationship to said panel unit face, and webs standing on said transition member and bearing said reentrant formations thereof complementally juxtaposed to said panel unit formations and bearing each one of said lands in contiguity with one of said linear key lands.

6. In a structure according to claim 1, said reentrant formations on said panel units and on said transition member and on said linear keys having a bulbous cross-sectional shape, and said lands in said distanced relationship to said panel unit face being borne along and by the side of the reentrant sides of said panel unit and key formations in said contiguity with one another.

7. In a wall structure, spaced apart facing panel units in two hollow walls converging to a corner intersection, said panel units having parting lines in two quadrantal planes meeting at an apex located exteriorly at a distance from both inner wall sides, a transition member in continuity with the panel units at the inner wall sides intervening between said parting lines thereof, a transition member in continuity with the panel units at the outer wall sides intervening between said parting lines thereof, reentrant mortise and tenon formations extending on said panel units and on each transition member in juxtaposition to each other at and along each parting line, flat lands extending along and by the side of each pair of said juxtaposed panel unit and transition member formations in a distanced relationship to the inward face of the respective panel units, linear keys bearing each two opposite sets of reentrant mortise and tenon formations and being in a frontal and lateral engagement of each set with one pair of said juxtaposed formations in each of said quadrantal planes, and flat lands borne on said keys along and by the side of said formations thereof in contiguity with said panel unit and transition member lands distantly from each panel unit face.

8. In a wall structure as set forth in claim 7, said transition member between said inner wall sides and said transition member between said outer wall sides having a section of a minimum thickness greater than the normal thickness of said panel units.

9. In a wall structure, panel units of at least two different modular widths alined at parting lines and forming portions of two right angular wall sides, two panel units in said sides converging towards each other and having the parting lines thereof spaced apart from each other and from said wall sides, a transition member occupying the span between two quadrantal planes through said spaced parting lines, reentrant mortise and tenon formations extending juxtaposed to each other on said transition member and on said panel units at and along said parting lines, reentrant like formations extending juxtaposed to each other on each two alined panel units in said wall sides, reentrant mortise and tenon formations extending at intermediate modular intervals on panel units wider than one module apart from said parting lines and from each other, each pair of said juxtaposed formations being jointly equivalent to one intermediate formation, lands extending along and by the side of said intermediate and said juxtaposed formations, said lands being in a distanced relationship to the panel unit inward face, linear keys bearing reentrant mortise and tenon formations and being in a slidable frontal engagement with said intermediate panel unit formations and in both a frontal and lateral engagement with said panel unit and transition member juxtaposed formations, and lands extending on said keys along and by the side of said formations thereof in contiguity with said lands along and by the side of said panel unit and transition member formations distant from said panel unit face.

10. In a wall structure as set forth in claim 9, said transition member having a minimum thickness greater than the normal thickness of said panel units.

11. In a wall structure, panel units of at least two different modular widths alined at parting lines in two sides of a hollow wall, two of said panel units having coterminous parting lines in both wall sides, a terminal member extending in continuity with said two panel units at and along said edges and across the width of said wall, reentrant mortise and tenon formations extending juxtaposed to each other on each two of said panel units at and along each parting line and on each of said two panel units and said terminal member at and along said coterminous parting lines, reentrant mortise and tenon formations extending at intermediate modular intervals on panel units wider than one module, each pair of said juxtaposed formations being jointly equivalent to one intermediate formation, said intermediate and said juxtaposed formations occurring on said wall sides in indiscriminate opposition the one to the other and the like ones to each other at non-coincident and coincident parting lines and apart therefrom, and linear keys bearing reentrant mortise and tenon formations on two opposite profile sides thereof, said keys being in a slidable frontal engagement with said panel unit intermediate formations and in both a frontal and lateral engagement with said panel unit and terminal member juxtaposed formations in said indiscriminate opposition thereof on said wall sides and at said coterminous parting lines at said terminal member.

12. In a wall structure as set forth in claim 11, lands extending along and by the side of said intermediate and said juxtaposed mortise and tenon panel unit and terminal member formations at a distance from the inward panel unit face, and lands extending on said linear keys along and by the side of said reentrant mortise and tenon formations thereof and being in contiguity with said panel unit and terminal member lands.

13. In a structure according to claim 12, stringers extending on said panel units at said parting lines and bearing each one half of said juxtaposed reentrant formations thereat, stringers extending on the panel units wider than one module at intervals apart from said parting lines and bearing said intermediate reentrant formations thereat, flanges as a part of said stringers secured to said panel units along and by the side of said respective formations, said flanges having an outer face and providing said panel unit lands thereby at said distance from said panel unit face and being in said contiguity with said linear key lands thereat.

14. In a structure according to claim 12, stringers extending on said panel units at said parting lines, stringers extending on the panel units wider than one module at intervals apart from said parting lines, flanges as a part of said stringers secured to said panel units in the respective stringer locations, webs standing on said flanges and bearing each one half of said panel unit reentrant formations at said parting lines and bearing said panel unit intermediate reentrant formations apart from said parting lines and at said distance from said panel unit face along and by the side of each of said parting line formations bearing one of said lands and along and by the side of said intermediate formations bearing said lands, and webs standing on said terminal member and bearing each one half of said reentrant formations thereof and bearing one of said lands therealong and by the side thereof complementally juxtaposed to said panel unit parting line formations and land and in said contiguity with one of said linear key lands.

15. In a wall structure, spaced apart facing panel units forming a hollow peripheral wall and a hollow partition wall and converging to a right angular juncture of said

partition wall with said peripheral wall, two panel units in the peripheral wall inner side having parting lines distanced from each other, two facing partition wall panel units having parting lines distanced each from one of said peripheral wall distanced parting lines, said peripheral and partition wall distanced parting lines extending in two pairs of quadrantal planes having apices located exteriorly of the right angle inner wall sides at a distance therefrom, two transition members of quadrantal span in continuity each with one peripheral wall and one partition wall panel unit and intervening between said distanced parting lines thereof, reentrant mortise and tenon formations juxtaposed to each other on said panel units and on said transition members at and along said parting lines, reentrant mortise and tenon formations extending on one panel unit in the outer peripheral wall side in opposition to each of said transition member formations, lands borne on said panel units and on said transition members and on said outer wall side panel unit along and by the side of said formations thereof, three linear keys bearing reentrant mortise and tenon formations on two opposite profile sides thereof, and lands extending on said keys along and by the side of said formations thereof, two of said keys being in said peripheral wall in a lateral and frontal slidable engagement with said juxtaposed panel unit and transition member formations and with said outer wall side panel unit formations in opposition thereto, one key in said peripheral wall being in a frontal and lateral slidable engagement with said juxtaposed panel unit and transition member formations in opposition to each other therein, said key lands being in contiguity with said lands borne along and by the side of said formations in opposition to each other.

16. In a wall structure as set forth in claim **15**, said outer wall side panel unit being alined with two panel units at parting lines extending each in one plane from each of said quadrantal pairs thereof and in opposition to said inner wall side distanced parting lines, said outer wall side panel unit mortise and tenon formations being juxtaposed to like formations on said panel units alined therewith and being jointly in said engagement by said two keys, said outer wall side panel unit and said transition members in said inner wall side being each of a thickness greater than the normal thickness of said peripheral wall panel units, and said lands along and by the side of said formations in contiguity with one another being borne in a distanced relationship to the inward face of said inner wall side and partition panel units and of said outer wall side panel units next to said greater thickness panel unit therein.

17. A wall structure including, panel units of modular widths in spaced apart facing inner and outer rows forming hollow walls and L- and T-intersections therebetween, two panel units in at least one wall having coterminous edges, a terminal member extending along and across said edges, two angularly related panel units at each L-intersection inner corner and two pairs of angularly related panel units at each T-intersection inner corners having edges in two quadrantal planes intersecting at an apex located exteriorly of said walls, a transition member intervening between each two of said quadrantal planes, said transition member having an exterior face substantially coplanar with said angularly related panel units at said parting lines, a panel unit complementing the outer panel unit row at each L-intersection between said quadrantal planes, a panel unit complementing the outer panel unit row at each T-intersection between two parallel planes each from on quadrantal pair thereof at said inner corners, reentrant mortise and tenon formations extending on said panel units at intermediate modular intervals apart from the edges thereof and from each other on panel units wider than one module, reentrant mortise and tenon formations juxtaposed to each other extending at and along the edges of each two meeting panel units and of each panel unit and each terminal member and each transition member, each two juxtaposed formations being jointly equivalent to one intermediate formation, said intermediate and juxtaposed formations occurring on the facing panel units in said walls in indiscriminate opposition of one to either a like one or to the other one apart from the edges and at coincident and non-coincident edges in said facing rows, lands borne on said panel units and on each terminal member and on each transition member along and by the side of said juxtaposed formations thereof and along and by the side of said panel unit intermediate formations, linear keys bearing reentrant mortise and tenon formations on two opposite profile sides thereof, and lands borne on said keys along and by the side of said formations, said keys being in a slidable engagement of said opposite formations thereof with said intermediate panel unit formations and with said panel unit juxtaposed formations in said indiscriminate occurrence thereof on said facing panel unit rows and being in a slidable engagement with said juxtaposed panel unit and terminal and transition member formations, said key lands borne being in contiguity with said lands along and by the side of said panel unit and terminal member and transition member formations.

18. In a wall structure as set forth in claim **17**, said transition member at each L-intersection and both like transition members at each T-intersection and said panel unit complementing each L-intersection and said panel unit complementing each T-intersection in the outer panel unit row having a minimal thickness greater than the normal thickness of said panel units, and said lands borne in contiguity with one another along and by the side of said formations being borne at a distance from the panel unit inward face.

19. In a wall structure as set forth in claim **17**, said mortise and tenon formations extending on said panel units and on said terminal member and transition member being of a relatively low height, and said linear keys having at least one web intervening crosswise of said walls between said mortise and tenon formation bearing profile key sides, said key-locked formations and said key web providing a unitary stress member at each modular interval in said walls by relative immobility thereof at said lands in contiguity along and by the side of said formations.

20. In a wall structure as set forth in claim **17**, said mortise and tenon formations extending on said panel units being borne on stringers, said stringers on said facing panel unit rows reaching into close proximity with each other and said terminal member and said transition member formations being juxtaposed to the panel unit formations thereat in said close proximity with each other, said linear keys having a relatively thin central web lengthwise of said walls and bearing said mortise and tenon formations at each profile side on said web, said key-locked formations and said panel unit stringers and terminal member and transition member providing a unitary stress member at each modular interval in said walls by relative immobility thereof at said lands in contiguity along and by the side of said formations thereof.

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