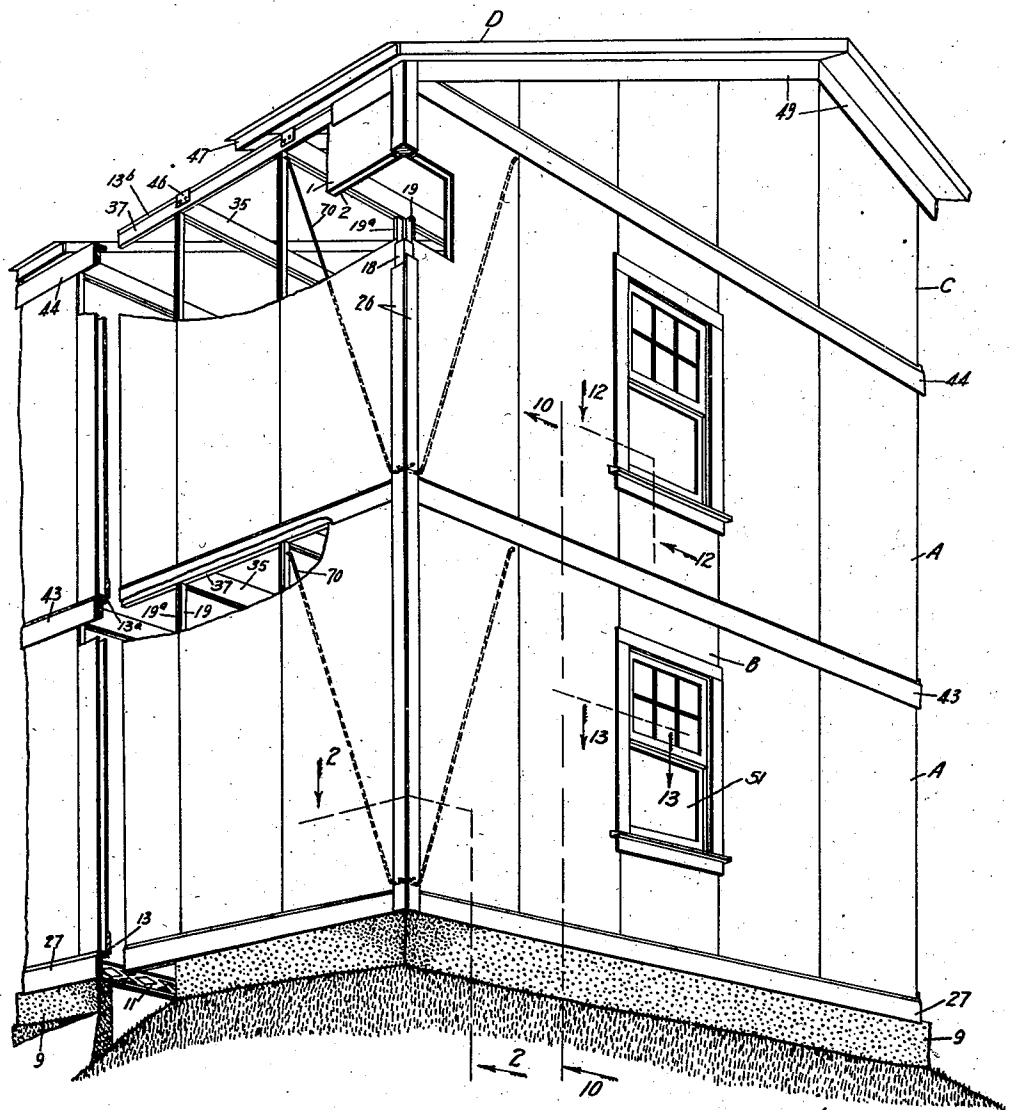
March 12, 1940. T. H. COE, JR 2,193,550

PREFABRICATED BUILDING

Filed April 1, 1937 5 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

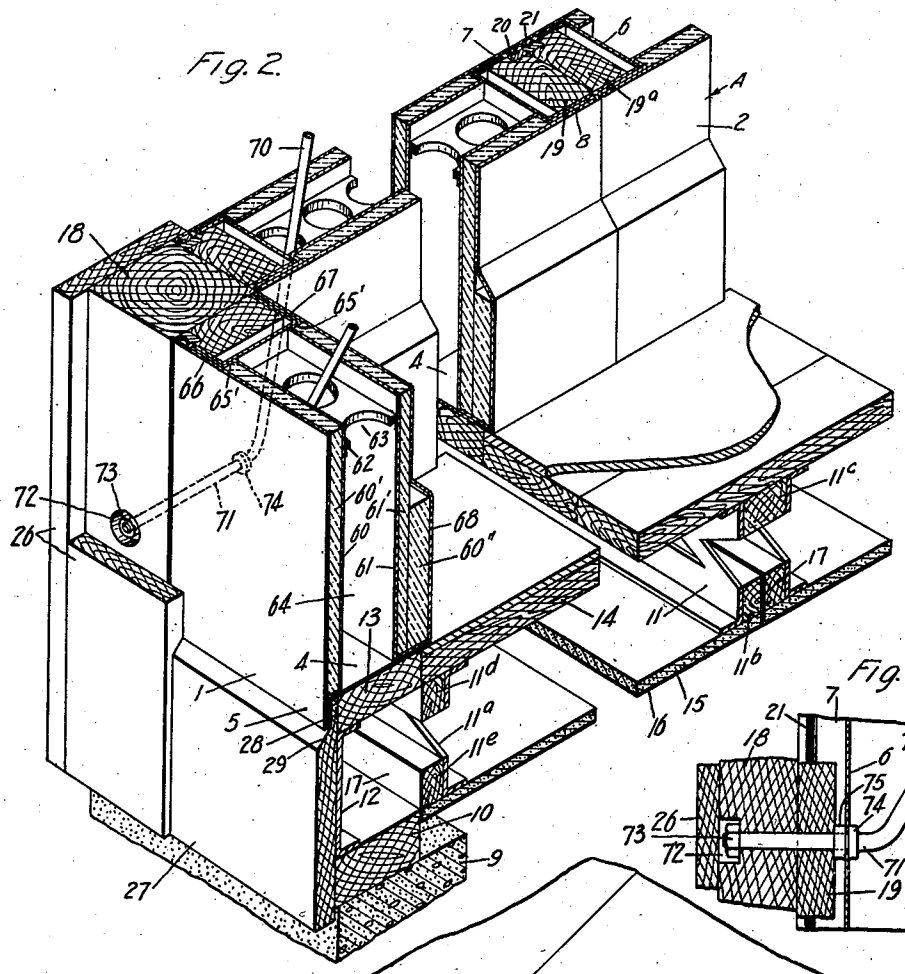
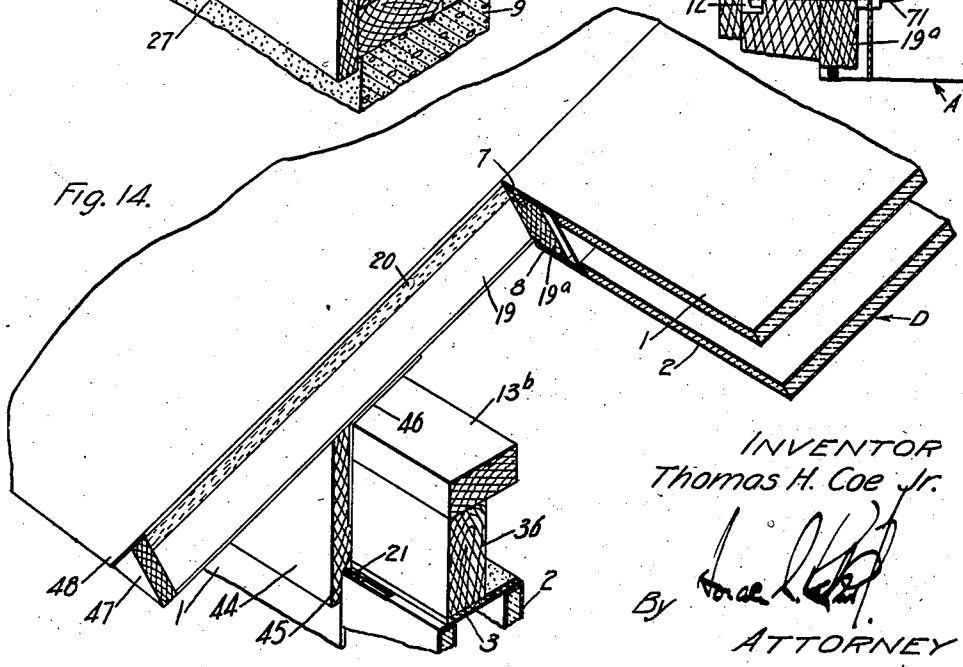


Fig. 15.

Fig. 14.



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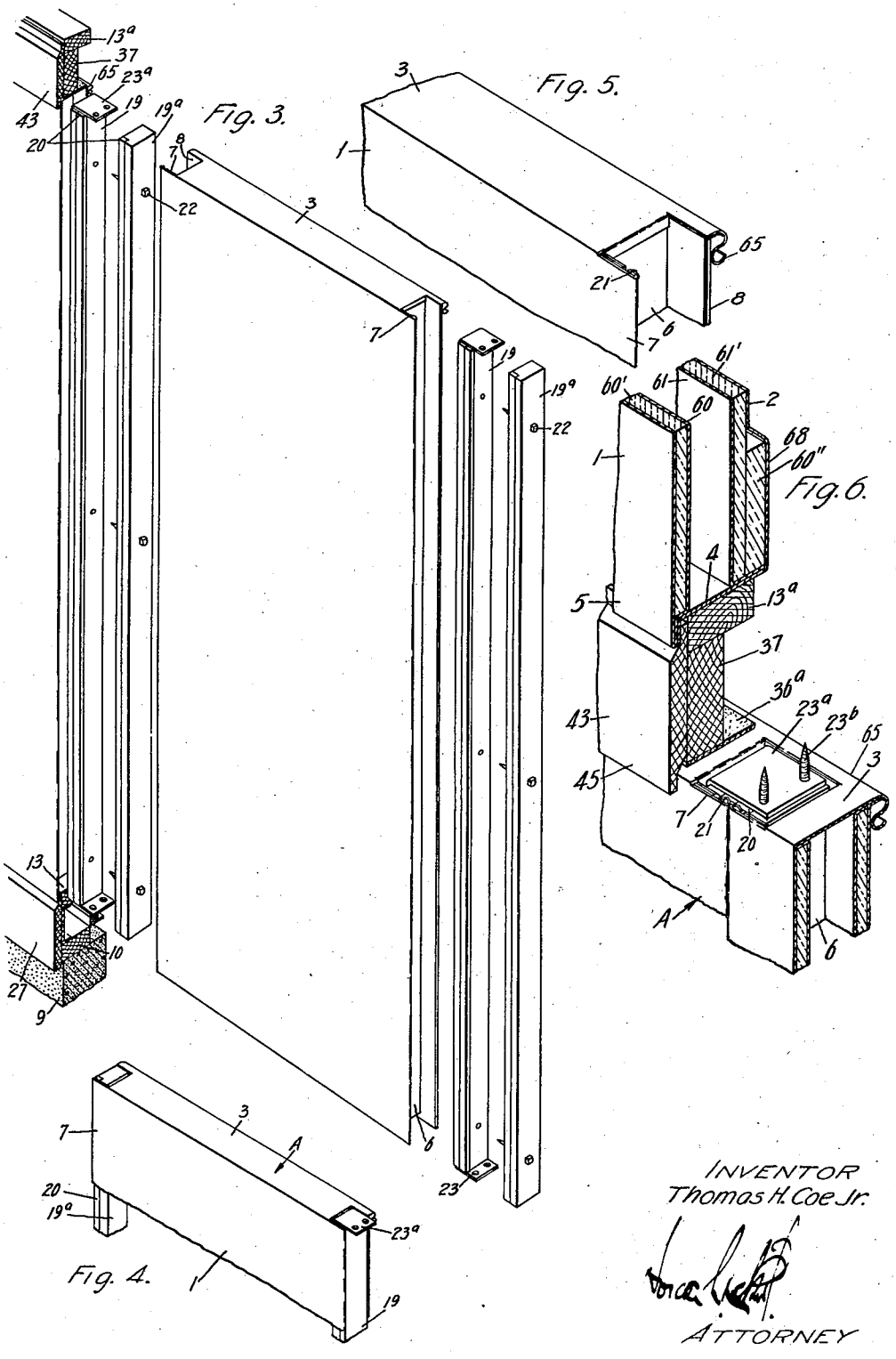
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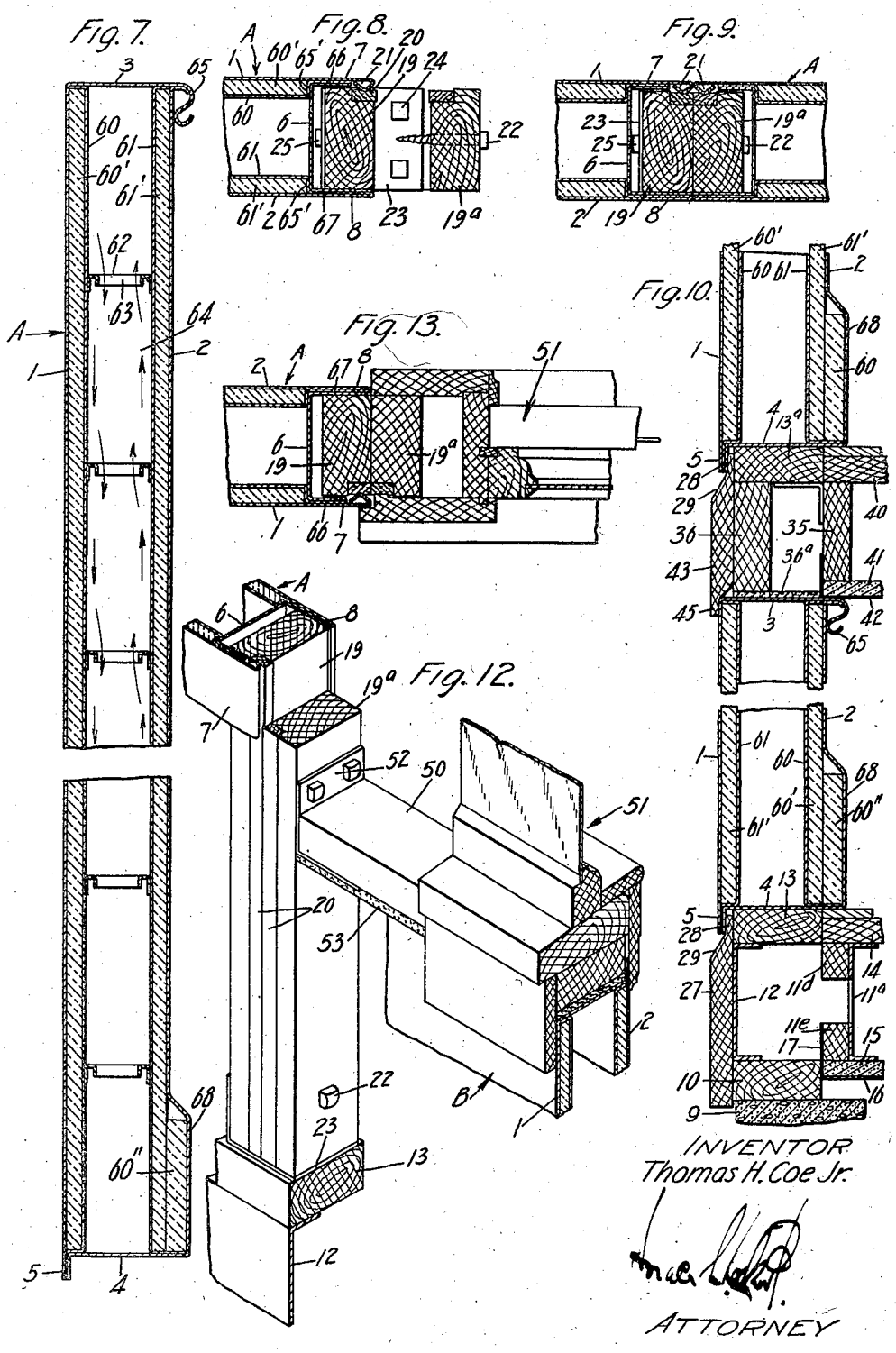
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PREFABRICATED BUILDING

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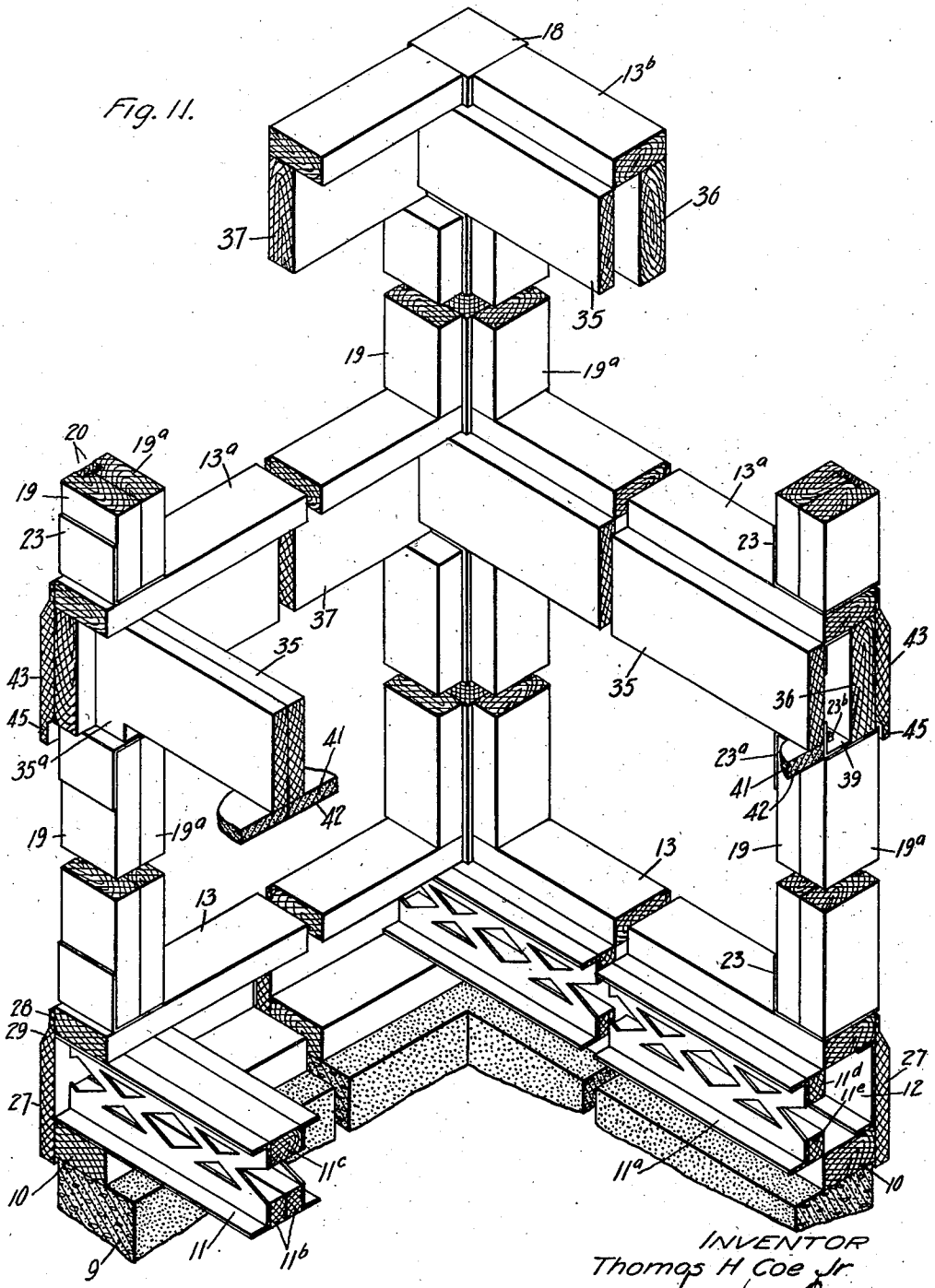


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Fig. 11.



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UNITED STATES PATENT OFFICE

2,193,550

PREFABRICATED BUILDING

Thomas H. Coe, Jr., Hartford, Conn.

Application April 1, 1937, Serial No. 134,372

17 Claims. (Cl. 20—2)

My invention relates to prefabricated buildings.

It has among its objects to provide an improved building of the general type described and claimed in my copending application Serial No. 743,331, filed September 10, 1934. Further objects of my invention are to provide such an improved building having an improved and simplified outer structure of the panel type and an improved frame cooperating therewith in an improved manner to locate and position said structure and unite the same into a building. Still further objects of my invention are to produce such an improved building wherein, by reason of an improved construction of panel members forming the outer structure, it is made possible materially to reduce the cost of the panels and the building and facilitate the erection of the latter, while continuing to obtain the desired thermal characteristics and other advantages of my panels heretofore described and claimed. Still another object of my invention is to provide such improved panel members having improved connecting members adapted to form a part of the panel unit as shipped from the factory, and adapted to protect the edges of the panel units during shipment, and to be readily connected to like members on adjacent panel units during erection to form the connecting means between adjacent units. Still another object of my invention is to provide an improved frame having such improved connecting means adapted to form improved intermediate studs and to cooperate in an improved manner with corner studs and improved sill, plate, and roof carrying members, whereby the several panels may be united into an improved wall or roof structure very simply and expeditiously. Still other objects of my invention are to provide such improved panel units adapted to carry usual closure means such, for example, as windows, therein, and to provide such closure carrying units adapted to be readily connected to the adjacent units and in the frame structure. Still another object of my invention is to provide an improved construction having the advantages set forth and also adapted to permit a panel or panels to be removed and replaced with facility whenever desired. These and other objects and advantages of my improved construction will, however, hereinafter more fully appear.

In the accompanying drawings I have shown for purposes of illustration one embodiment which my invention may assume in practice.

In these drawings—

Figure 1 is a perspective view of a corner of a building constructed in accordance with my improvements, portions being broken away to facilitate illustration;

Fig. 2 is a perspective view of a corner of the building, certain portions being broken away to facilitate illustration and a plurality of panels and portions of the frame, foundation, floor, and a basement ceiling being shown in section on line 2—2 of Figure 1;

Fig. 3 is a perspective view showing a panel and associated half stud members on opposite sides thereof in the spaced relation which they assume during assembly on an adjacent completed wall portion which is shown in section;

Fig. 4 is a detail similar to Figure 3, showing a panel and associated half stud members as assembled ready for shipment;

Fig. 5 is an enlarged view of one upper corner of the panel member shown in Figure 3;

Fig. 6 is a perspective view partially in section showing the connection of the upper ends of two lower panels to the frame, the frame and an upper panel being shown in section;

Fig. 7 is a vertical sectional view through a panel member, a portion being broken away to facilitate illustration;

Fig. 8 is a transverse sectional view showing a panel member with its associated stud portion about to be connected to a cooperating stud portion;

Fig. 9 is a like view showing the parts connected;

Fig. 10 is a sectional view substantially on line 10—10 of Figure 1;

Fig. 11 is a perspective view from the inside, showing the frame structure from the foundation up through the plate on the second story, certain portions being broken away to facilitate illustration and the panels and certain other parts also being omitted for this reason;

Fig. 12 is a detail sectional view showing the frame and panel unit structure carrying a window, the latter being shown in section on line 12—12 of Figure 1 and certain parts of the panels being broken away to facilitate illustration;

Fig. 13 is a transverse sectional view through a window and frame therefor, the section being taken on line 13—13 of Figure 1;

Fig. 14 is a sectional view of the roof structure comprising connected panels, and its connection to the plate, portions of the upper plate and of an adjacent lower panel and a roof panel, also being shown in section, and

Fig. 15 is a sectional detail view showing the connection of one of the panel reenforcing rods to its stud.

In this illustrative construction, I have shown a two-story building of the gable roof type having its outer structure formed of a plurality of panels comprising standard wall panels generally indicated at A, special wall or closure carrying panels, such as window or door panels, generally indicated at B, gable end panels generally indicated at C, and roof panels generally indicated at D; these several panels being improved and operatively connected through improved con-

necting means cooperating to form a part of the frame of the building, as hereinafter described.

Of these panels, it will be noted that the panels A are of the general structure described and claimed in my previous application mentioned. Thus, each of the same presents the inner and outer wall of the building and comprises an outer sheet or face 1 and an inner sheet or face 2, preferably formed of suitable sheet metal, such as steel or aluminum. Each of these panels A is also of the general hollow heat and sound insulating internal construction previously described, whereby the panel, while being light and relatively thin, has the desired thermal and soundproofing characteristics, although the internal construction of the panel per se is improved as hereinafter appears. Also, as regards their external construction, it is to be noted that the panels A distinguish from the panels of my prior construction in having each of the faces 1 and 2 of substantially the same size and in having no channel and seal along its top edge and no extension and seal on the front bottom edge. Instead, the panels A have flat tops and have their hollow interiors sealed off at the top by a flat plate 3, while they also have a substantially flat bottom sealed off by a flat plate 4, and are provided with only a short downward extension 5 at their outer edges. However, each vertical edge of each panel A is similarly sealed off by a plate 6 having flanges cooperating with protruding edge portions 7 and 8 of the plates 1 and 2 to provide a channel aperture along each vertical edge of each panel. Thus, it will be evident that a plurality of such panel units A may be connected to form the wall of either the first or any subsequent story, with most of the wall formed from these so-called standard panels A and with the latter usable interchangeably save where doors and windows are desired, the several panels being mounted in a frame and connected by improved means hereinafter described.

Referring more particularly to the lower floor, it will be noted that, as shown in Figs. 2 and 11, the same is carried on a suitable foundation 9 having a marginal timbering 10 suitably fixed thereto and carrying the ends of floor carrying beams 11 of suitable construction. As illustrated, the intermediate beams 11 include light outer skeleton type metal channels 11*a* spaced apart by and connected to a plurality of wooden spacing and connecting cellar ceiling nailing strips 11*b* at their bottom, and a single such floor nailing strip 11*c* at their top. Further, along the portion of the foundation parallel to the beams, it will be noted that an inwardly directed channel 12 is provided along the outer edge of the marginal timber 10, and that adjacent the latter, the outer beam 11 is of single construction, as distinguished from the double construction above described, comprising a single channel 11*a* opening toward the interior of the building and carrying on its top and bottom edges, floor and cellar ceiling nailing strips 11*d* and 11*e*. It will further be noted that supported on the ends of the beams 11 and along the outer channels 12, are sill members 13 which carry the several studs and the first floor panels, and that a suitable wooden floor 14 is carried transversely on the beams 11 in marginally spaced relation to those sill members 13, and nailed to the floor nailing strips 11*c*, 11*d*. Also, cellar ceiling forming members 15, preferably in the form of insulating boards such as sheet rock or the like, are fixed to the nailing strips 11*b*, 11*e*; the same herein in Fig. 2 being also shown to be enclosed in sheet metal members 16 having longitudinal edge flanges 17 extending up outside the nailing strips 11*e* and between the nailing strips 11*b*.

In referring more particularly to the mounting of the panels to form a wall on the sill members 13, reference is had to Figure 2. Assuming that a corner stud 18 has been suitably positioned, it will be evident that the wall may be built therefrom in either direction by erecting the panels A one after the other with their intermediate and connecting stud structures. Here, it will be noted that each panel A is provided within the channel shaped edge thereof, heretofore described, formed by the portions 7, 8, with half studs 19, 19*a*. Further, it will be noted that each of these half studs is provided with a resilient insert 20 along the outer edge thereof, such, for example, as cork or the like, and adapted to receive a suitably resiliently connected bent-in portion 21 on the protruding edge 7 of the outer plate 1. Thus, when one of these studs, herein 19*a*, is suitably fixed to the corner stud 18, as by screws 22, it is possible for a panel A to be slipped over the stud 19*a* shown in Figure 2, in such manner that the portion 21 slides over the outer face of the stud 19*a* and is snapped into and sealed in embedded position in the material 20, the panel A thereby being securely gripped to the half stud 19*a* throughout the length of the panel and stud by this portion 21.

The opposite vertical edge of the panel A being provided with a like channel portion and also carrying a like but oppositely disposed half stud 19 in this channel portion, it will be evident that when the half stud 19 is suitably connected to the sill at its bottom, as through an angle plate 23 suitably fixed by screws 24 to the sill 13 (Figure 8), and is also connected to the stud 19 by a screw 25, the first panel A will be connected in upright position in the wall. Also, the second panel unit A may then be very readily connected thereto by attaching its half stud 19*a* to the half stud 19 by the screws 22 and then simply sliding the U-shaped edge of this second unit A over the exposed half stud 19*a* until the spring portion 21 on this second panel unit snaps into the yielding material 20 provided therefor on the half stud 19*a* (see Figs. 8 and 9). Attention is further directed to the fact that due to the projection of each strip of the material 20 beyond the adjacent side of its half stud, the bringing together of the two half studs, compresses this material in such manner as to provide an effective watertight seal between the studs, which extends along the entire height thereof, and thereby provide an effectual seal between the panels, while the strip 20 on the adjacent half stud 19*a* forms a similar seal along the corner stud 18.

Obviously, this process may be repeated around the wall as necessary to erect the first story wall on the sill, with closure carrying units B, hereafter described, inserted where desired, the outer and inner plates 1, 2 of the several units then forming the outer and inner surfaces of the finished wall. Further, it will be noted that I preferably provide outer corner boards 26 at the corners, which are suitably fixed to the corner studs 18 and have their edges overlying the adjacent resilient portions 21 on the outer face of the panel. Moreover, it will be observed that, preferably before the panels A are put in position, I also place on the outside of the sill a drip board 27 extending to adjacent the top of the sill members 13 and provided with a reduced upper edge 28,

over which the lower extension 5 on the panel A is adapted to be disposed and also with a sloping portion 29 forming a water table.

The panels A are each preferably shipped with half studs 19, 19a disposed in the opposite channelled vertical edges thereof, as shown in Fig. 4, so that these half studs serve to prevent damage to the metal channelled edges during shipment, while these half studs when so disposed are very conveniently located for use in assembly. Moreover, the half studs 19, as shipped, are preferably provided with the angle 23 suitably connected to the stud, as by the screw 25 (Figure 8), so that in erecting, all that it is necessary to do is to connect these angles 23 to the sill 13 in their desired positions by screws 24. Further, I preferably provide a similar angle for connection at the top of the first story, as hereinafter described, this angle 23a being carried on the upper end of the half studs 19.

On the upper ends of the tier of first story panels A, a second story supporting structure is provided including members 13a corresponding to the sill members 13 and similarly disposed relative to and fixed to the corner studs 18. Herein, this structure includes wooden joists 35 of single and double construction, generally corresponding to the beams 11, and a parallel marginal member 36, corresponding to the channel 12, as well as a marginal member 37 disposed transversely across the ends of the joists, the members 36 and 37 also being fixed to the corner studs 18. Here also it will be noted that the double joists 35, as shown at the left in Figure 11, are provided with extensions 35a supported on down turned angle plates 23a overlying the ends of studs comprising connected half stud members 19, 19a. Each member 36 is similarly supported on its studs 19, 19a on a like plate 23a, with, if desired, as shown in Figure 6, a layer 35a of quilting or the like, underlying the bottom edge of the member 36 and between the same and the upper flat end 3 on the panel members A. Further, each single joist 35 adjacent the marginal member 36 is of such cross section as to provide space for an angle clip 39 to be likewise supported on the end of its supporting stud 19, 19a; this angle clip being preferably suitably connected to the side of the single joist 35 adjacent the member 36. Also, the outer ends of all of the joists 35 are connected to the transversely disposed members 37 which, with the members 36, in turn carry the members 13a. Here it will also be understood that the top plates 23a on the first floor panel studs are suitably connected, through connections 23b, to the members 37 and joists 35 and to the members 36 and angle plates 39, in such manner as to position the first story panels A in the frame thus formed; lag screws being used to connect the studs to the members 37 and double joists 35 and to the member 36, and bolt and nut connections being used to connect the same to the angle plate 39.

Thus it will be evident that, with the corner stud 18 projecting above the members 13a, the second story wall comprising the several connected half studs 19, 19a and panels A, may be erected in the same manner as previously described in connection with the first story wall. Further, it will be noted that a suitable floor 40, corresponding to the floor 14, may be carried on the tops of the joists 35 and nailed thereto, while it will also be noted that suitable ceiling forming members 41, corresponding to the members 15, and suitably carried on the under side of these joists and likewise preferably encased in flanged metal members 42, corresponding to the metal members 16, provide the ceiling for the first story.

While not limited to two stories, I have herein shown such a construction, the plate being carried above the second tier of panels A. Here, the construction is essentially similar to that described in connection with the second floor, including like members 36, 37 and 35 and carrying plate members 13b, corresponding generally to the members 13, 13a previously described. Here also, it will be understood that the second story tier of panels A is disposed as previously described, and that their stud members 19, 19a are connected at their upper and lower ends in a like manner to the members 13a and the upper members 35, 36 and 37. Obviously, if desired, a like ceiling and floor (not shown) may also be supported on the joists as heretofore described. Note here also that drip boards 43, 44 are provided outside the bottom and top members 36, which correspond generally to the drip boards 27 but which have a cutout overhang 45 on their lower edges protruding downward outside the upper edge of the panels A in the first and second story tiers thereof.

At the gable ends, it will also be understood that the panels C are disposed in a similar manner, these preferably being erected on the plate members 13b before the roof is added. The panels C correspond to the panels A heretofore described, save for the provision of the inclined upper ends on the panels C. Further, it will be understood that they also are provided with corresponding half stud portions 19, 19a which are similarly connected at their upper and lower ends as heretofore described, but between the members 13b and suitable inclined frame members leading to and suitably connected at the peak and otherwise corresponding to the connecting means for the upper ends of the studs heretofore described. Also, as shown, drip boards 49, corresponding to the board 44 are provided along the upper edges of these inclined frame members and the panels C, these boards 49 being adapted to be disposed under the overhang of the roof hereafter described.

In Figure 14, I have shown an improved roof structure supported on the plate members 13b, likewise comprising panels D of the same general construction as the panels A heretofore described, but having the plates 1 thereof forming the outer roof surface. Here, however, the half members 19, 19a thereof are joined together to form the rafters of the roof instead of studs as heretofore. If desired, the rafters thus formed, or the inner metal plates adjacent the panels D, are suitably fixed, as by screws or welding, to the upper inclined ends of angle plates 46 having their lower ends suitably fixed to the outside surfaces of the members 13b, 36, 37; this connection being so located as to provide any suitable desired overhang at the eaves. Here it will also be understood that the opposite ends of the rafters thus formed, are supported in any usual manner at the peak of the roof and that a structure corresponding to members 13b and 36, but disposed at the desired angle, above the panels D, is also provided and connected at the peak in any suitable manner. Further, it will be noted that in this construction, any suitable finishing piece 47 may be disposed along the eaves, and understood, that, if desired, an extension 48, corresponding to the extension 5 heretofore described but longer, may be provided on the panels D to increase the overhang as desired.

Referring to the closure carrying panels B, it

will be understood that these may carry closures in the form of either doors or windows and be disposed at any selected points in any of tiers of panels A or C. These closure panels B, of which a window panel is shown in detail in Figures 12 and 13, include in addition to half studs 19, 19a heretofore described, spaced header pieces 50 at the bottom and top, generally indicated at 51, which header pieces correspond generally to the members 13, 13a heretofore described. Further, it will be noted that the bottom header 50 in the illustrated window panel B, is spaced from the bottom member 13, and understood that the upper header 50 is similarly spaced from the members 36 and 37, in such manner as to receive short lower and upper panels, otherwise corresponding in construction to the panels A heretofore described, but spaced by the closure frame 51. Here, it will also be noted that the headers 50 are connected to the half studs 19a by angle plates 52 having portions underlying the headers. It will also be understood that, if desired, suitable uilting 53, corresponding to the quilting 36a, may be provided between the horizontal portions of the angle plates 52 or the headers 50, and the flat upper edges 3 of the short lower and upper panel portions.

While the internal structure of the several panels A, B, C, and D may be of the hollow sealed construction adapted to minimize heat transmission, which is described and claimed in my previously mentioned application, these panels preferably are of the improved internal construction shown in Figure 7. As shown in that figure, this construction includes in addition to the like sized outer and inner plates 1, 2, heretofore described, and the flat top and bottom sealing plates 3 and 4, inside spaced plates 60, 61 corresponding to those shown in my prior application and encasing suitable insulating means 60', 61', such as boards or loose insulating material such, for example, as rock wool or the like; of which the means 60' is disposed between the plate 60 and the outer plate 1, while the means 61' is disposed between the plate 61 and the inner plate 2. However, herein, this insulating material is coextensive with the like sized plates 1 and 2, and the means 60' and 61' are each of the same size, enabling a standard insulating board to be used in either face of the panel. Herein, also the plates 60 and 61 are provided with bright, as distinguished from polished, reflective inner surfaces, and it will also be noted that these plates are internally connected, as by welding, to improved closely spaced horizontal connecting members 62, preferably formed of metal of relatively low heat conductivity, such as nickel steel. Each of these members 62 is also provided with a series of spaced vertically opening, herein round, centrally located holes 63 extending close to each side margin of the member 62 (Figure 2 and Figure 7). These holes 63 are so disposed that any air circulation set up in any of the superimposed chambers 64 thus formed above and below the members 62, tends to take the path shown by the arrows in Figure 7, and, accordingly, to bring any flowing currents of air into conflict as they pass through the openings 63. Thus, it will be noted that the hotter air, i. e. that more closely adjacent the inside plate 2, will tend to pass upward as illustrated, while the colder air, more closely adjacent the outer plate 1, will tend to pass downward, while both flows will tend to pass through the opening 63 in such manner as thereby to produce a conflict or turbulence, and cut down the circulation of the air in the panel and transfer of heat by convection, and, accordingly, increase its insulating character.

As regards the construction and connection of the several component plates forming the panel, it will also be noted that the panel is of improved construction. Herein, the plate 1 and the flat top plate 3 are formed integral, and the plate 3 is also provided on its inner edge with a short extension shaped to form a depending molding strip 65 which extends downward inside the plate 2 into contact therewith. Further, it will be noted that, herein, the plate 60 has its upper end bent laterally outwardly inside the plate 3, while its lower end is similarly bent laterally outwardly inside the plate 4, and then bent downward between extensions on the plates 1 and 4 which cooperate to form the depending extension 5. Further, the plate 61 is generally similar to the plate 60 as regards the lateral extensions at the top and bottom. Here, attention is also directed to the fact that, as shown in Figs. 8 and 9, the members 60, 61 are provided with angular flange portions 65' along their vertical edges which are preferably spaced apart by U-shaped members 6. The outer arms 66 of these members 60 extend to the edge of the member 6 terminating just inside the flexible portion 7 carrying the snap portion 21, while the inner arms 67 of member 61 terminate short of the edge of the member 2 and the latter is turned back inwardly as shown. As a result of the above construction, it is made possible to assemble this improved form of panel very readily and inexpensively, and to seal and connect the parts quickly and conveniently by welding along the peripheral overlapped portions thereof. Here, also it will be evident that, as heretofore described, the plate 2 may be so shaped at its bottom as to form a base board 68, if desired, an additional insulating portion 60'' then being also disposed therein.

As a result of a panel of the improved construction described, it is not only possible to obtain the advantages thereof heretofore set forth, but further through the provision of the improved spacing members 62 having the centrally located aperture 63 therein, to connect these panels to the studs and frame in an improved manner while substantially reenforcing both the panels and frame. More particularly, it will be noted that as shown, for example, at a corner in Figs. 1, 2 and 15, I preferably provide reenforcing rods 70 which extend diagonally through the adjacent panels and certain openings 63 in the members 62 therein and have bent ends 71 extending laterally through the edge members 6 of the panels and the half stud members 19, 19a at the opposite edges thereof and the top and bottom of the panel. Also, each end 71 is extended through the adjacent stud and connected in a suitable countersink 72 therein by a nut 73. Also, a shoulder 74, or nut if desired, is preferably provided on the end 71 and engages the inside of the edge member 6, while a spacer 75 is disposed in the portion 71 between the stud 19 and the edge member 6. Attention here is further directed to the fact that they may be used on all the panels or only the corner panels, as shown in Fig. 1. Further, while their arrangement may be varied, when used at a corner, the lower ends of adjacent rods are preferably connected at the bottom of adjacent edges of the panels, and the upper ends of these rods are extended through the studs at the opposite sides of the panel and at the top thereof. By reason of these reenforcing rods and their disposition and connec-

tions, it will be noted that the panel and the frame structure is very substantially reenforced. Attention is also directed to the fact that these rods are preferably incorporated in the several panels during assembly of the latter, and that, when thus incorporated therein, they further serve to connect the panels and their half studs into a unit during shipment and to facilitate connection of the several units during the erection of the wall.

It will be understood that instead of utilizing steel or aluminum in making up the panel, I may use other metals or other materials than metal if desired, such for example as resin or other compositions adapted to be molded or otherwise formed into the desired shapes. However, metals such as steel or aluminum are preferred on account of the present expense of other materials. Moreover, it will be understood that, if desired, I may provide the bright surface on the inside walls of the chamber **64** by suitably coating or plating these walls with suitable materials, such for example as zinc or aluminum. Further, when assembling the panels, it is desirable that the air therein should be substantially dehydrated to avoid subsequent difficulties with condensation. Careful sealing of the panels is also desirable to minimize circulation within the same, which circulation is further minimized in my improved construction by the conflict in flow occurring in the openings **63**.

It will further be understood that, while I have shown my improved half stud and half rafter members as made of wood, I contemplate the use of such members of any other suitable material, as steel or the like, and the use of the same in usual channel or other light form usual in metal construction. Also, I contemplate the use of a metal frame where desired, as distinguished from the illustrative wood frame.

Attention is directed to the fact that in my improved construction, provision is made for insuring a weather-proof outer wall surface while at the same time enabling the several panels to be of minimum thickness and to have the desired heat, cold and sound insulating qualities. Attention further is directed to the finished and attractive appearance of both the outer and inner wall surface provided. It will also be evident that only a relatively simple and inexpensive frame is required other than the panels and the sectional frame members carried in the channels thereof, while it will be apparent that the entire wall and roof structure may be very quickly erected as these supplementary frame members and panels are successively connected in place. Attention is also directed to the fact that, when desired, erection ending at a window or door, one or more panel units may be readily removed by starting at a window or door, as by taking out the window frame which will expose the bolts **52** and also permit the removal of lag screws **22**, etc. These and other advantages of my improved construction will, however, be clearly apparent to those skilled in the art.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form is shown for purposes of illustration and that the invention may be modified and embodied in other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a prefabricated building, a frame, and an outer surface structure thereon comprising a plurality of panel units having inner and outer flanges forming channels extending longitudinally along adjacent side edges and sectional building frame members between said flanges comprising adjacent members separably connected together along a longitudinal line and receivable in said channels upon relative lateral movement of said frame members and panel units, said frame members also being connected to said frame to form supplementary frame members between adjacent units.

2. In a prefabricated building, a frame, and a wall structure thereon comprising a plurality of prefabricated wall forming units each comprising a panel member having channel forming flanges extending longitudinally along its side edges and sectional stud members receivable in said channels upon relative lateral movement of said panel and stud members and connected together and to said frame to position adjacent panel members.

3. In a prefabricated building, a frame, and roof structure thereon comprising a plurality of prefabricated roof forming panel units each comprising a panel member having spaced channel forming flanges extending longitudinally along its side edges and sectional frame members receivable between said flanges upon relative lateral movement of said panel unit and frame members, adjacent frame members being connected together and to said frame to form rafters between adjacent units.

4. A prefabricated panel unit for forming an outer building surface comprising a closed panel member having a closed edge inhibiting access to the interior of the panel unit, and cooperating frame member receiving channel forming means along said edge thereof, a frame member disposed in and reenforcing said means, and connecting and sealing means between said receiving means and frame member snapping together to form a unit upon relative lateral movement of said panel member and frame member.

5. A prefabricated panel unit for forming an outer building surface comprising a closed panel member having closed edges inhibiting access to the interior of the panel unit, and frame member receiving channel forming flanges along opposite edges thereof, frame members disposed in and reenforcing said flanges, and connecting means extending through opposite closed side edges of said panel member and through the frame members on opposite edges thereof forming a unit of said members upon relative lateral movement of said panel member and frame members.

6. A prefabricated wall forming panel unit comprising a closed panel member having closed edges inhibiting access to the interior of the panel unit, and frame member receiving channel forming flanges along opposite edges thereof, frame members disposed in and reenforcing said flanges, and connecting means extending through opposite closed side edges of said panel member and through said frame members on opposite edges thereof forming a unit of said members upon relative lateral movement of said panel member and frame members including a diagonally disposed member having lateral extensions protruding through opposite ends of different frame members.

7. A prefabricated wall forming panel unit comprising a closed panel member having inner

and outer spaced face portions and an enclosed portion therebetween sealed around its edges to prevent access to the interior of said unit, spacing means in said enclosed portion comprising a plurality of vertically apertured transversely disposed spacing members, and a reenforcing rod having a portion extending diagonally through registering apertures in said members.

8. A prefabricated wall forming panel unit comprising a closed panel member having outer spaced face portions and an enclosed portion therebetween sealed around its edges to form a completely closed unit, and spacing means in said enclosed portion comprising a plurality of vertically spaced and vertically apertured transversely disposed spacing members, said spacing members having a series of centrally located apertures therein midway between said outer face portions, and said spacing members dividing said enclosed portion into a series of parallel compartments having no communication with the atmosphere and communicating with each other only through said apertures.

9. A prefabricated wall forming panel unit comprising a closed panel member having outer spaced face portions and an enclosed portion therebetween sealed around its edges to form a completely closed unit, and spacing means in said enclosed portion comprising a plurality of vertically spaced and vertically apertured transversely disposed spacing members, said spacing members having a series of centrally located apertures therein and midway between said outer face portions, said spacing members dividing said enclosed portion into a series of parallel compartments, having no communication with the atmosphere and communicating with each other only through said apertures, and said apertures being so disposed as to create turbulence while passing therethrough convection air currents moving oppositely along opposite outer walls of said enclosed portion.

10. In a prefabricated building, a wall frame including upper and lower plate and sill members, a plurality of wall panels in the space between said members having inner and outer wall surface forming sheets continuous from said plate member to said sill member and marginal means connecting said sheets in spaced relation, said sheets extending beyond said connecting means at the sides of the panels to form stud receiving channels, and sectional studs located in the confronting channels of adjacent panels comprising detachably connected sections, one of which is fixed at its upper end to said plate member and at its lower end to said sill member.

11. In a prefabricated building, a frame including corner and intermediate studs and cooperating transverse members presenting panel apertures at opposite sides of said corner stud, closed hollow panel members having closed opposite vertical edges extending between said transverse members, and reenforcing members extending diagonally through the closed vertical edges of said panel members and connected to said corner stud and to adjacent intermediate studs.

12. A prefabricated wall forming panel unit comprising a closed panel member having transverse closed top and bottom edges and oppositely disposed sets of channel forming flanges along opposite longitudinal closed side edges thereof, said panel member including a closed body portion between said flanges extending to said transverse top and bottom edges and having said flanges also extending substantially to the transverse top and bottom edges of said body portion.

13. In a prefabricated building, an outer structure including adjacent closed panel members having opposed sets of channel forming flanges extending longitudinally along adjacent side edges, half frame members in different sets of said flanges and disposed in abutting relation, means for connecting said abutting members, and cooperating sealing means on a flange on each panel member and on each half frame member engageable upon movement of said members along the line of the outer structure.

14. In a prefabricated building, an outer structure including a frame, a panel member, cooperating building frame members including a member fixed to said frame, one of said frame members being laterally movable relative to said panel member and positioning said panel member, and the other frame member being connected to said positioning member, and a cooperating panel member positioned by said other frame member upon lateral movement of said cooperating panel member relative to said frame member.

15. In a prefabricated building, an outer structure including a panel member having a spaced set of flanges along an edge thereof, cooperating building frame members, one received between said flanges and the other connected to said first mentioned frame member, and a cooperating panel member having a like set of flanges receiving said second mentioned frame member, and a snap connection between each panel member and the frame member received therein connectible on relative lateral movement along the line of the building.

16. In a prefabricated building, a wall frame including a plurality of abutting frame members fixed relative to said frame and to one another, panel members forming the inner and outer wall surfaces and each having a flanged edge enclosing one of said frame members, and sealing means between one of the flanges on each of said panel members and the frame member received therein, including resiliently connected flange portions and cooperating resilient portions carried by said frame members, said resiliently connected flange portions being embedded in said cooperating resilient portions and the latter normally protruding beyond adjacent edges of said frame members and being compressed in the abutting position thereof.

17. In a prefabricated building, a frame comprising corner studs and transverse connecting plate and sill members, a sectional stud connected to each corner stud, connected sectional studs between said transverse members cooperating therewith and with said studs to present a plurality of panel apertures, and panel members in said apertures having inner and outer wall forming surfaces which are continuous between said transverse connecting members, said panel members and studs being assembled by relative lateral movement therebetween.

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