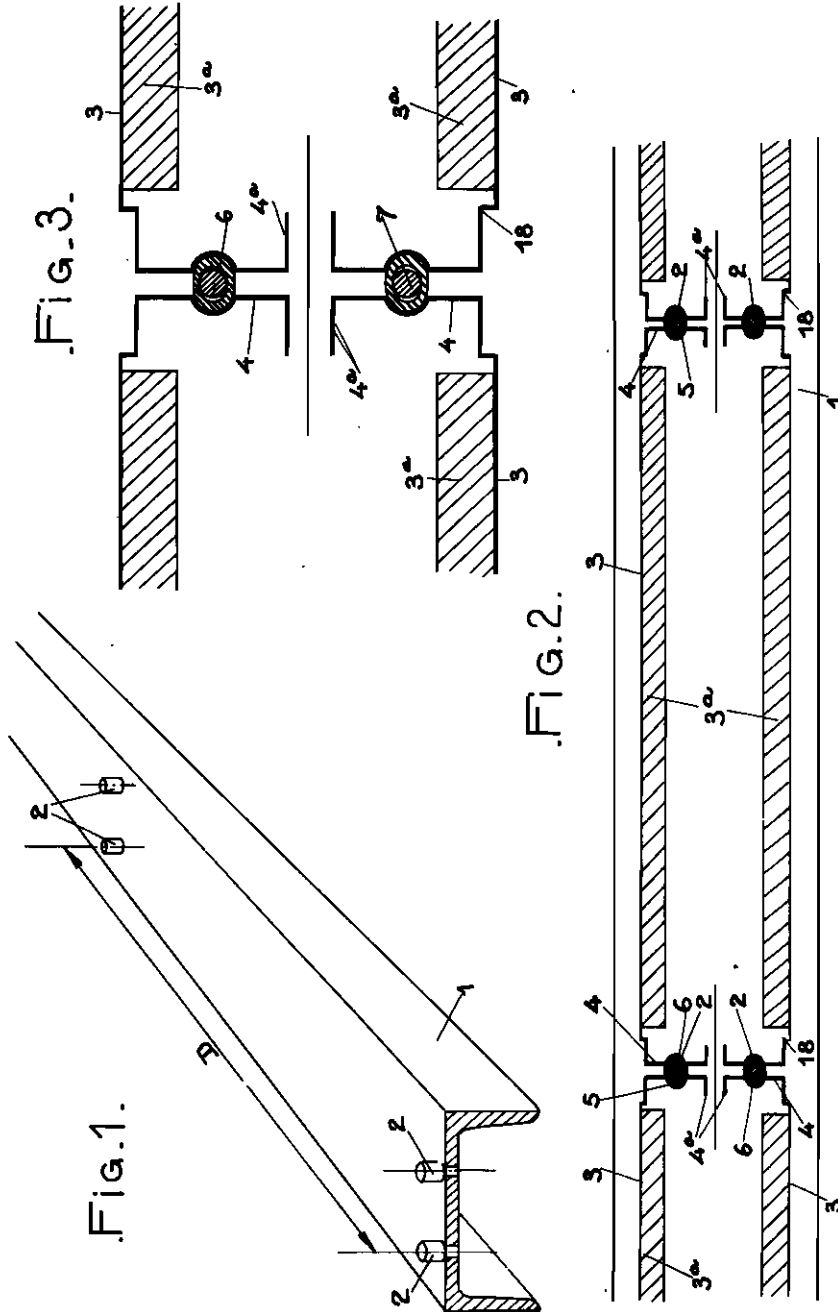


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MAY 18, 1943.
BY A. P. C.

R. BÉHIN
PROCESS AND MEANS FOR THE CONSTRUCTION OF
HOUSES WITH STANDARD PANNELLING
Filed May 15, 1940

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335,199

5 Sheets—Sheet 1



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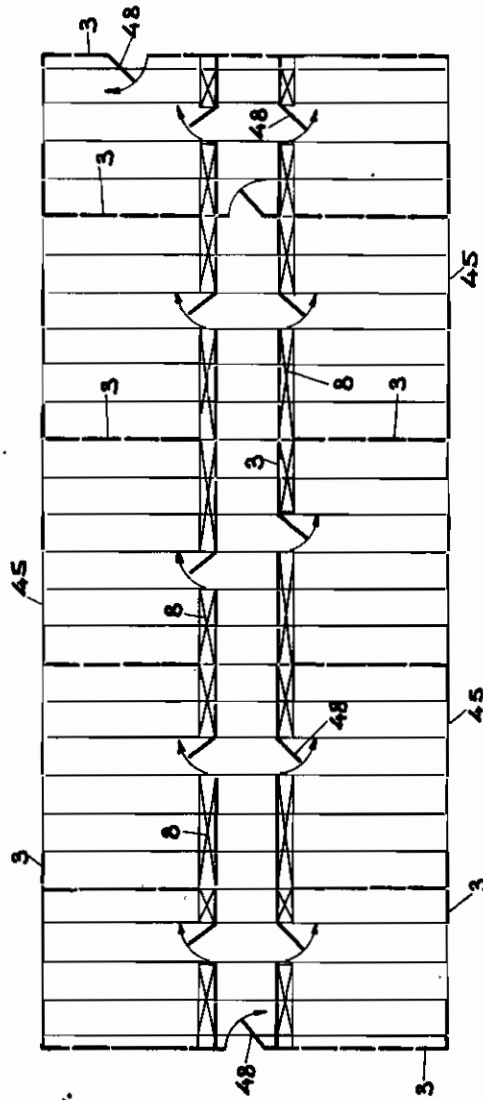


Fig. 4.

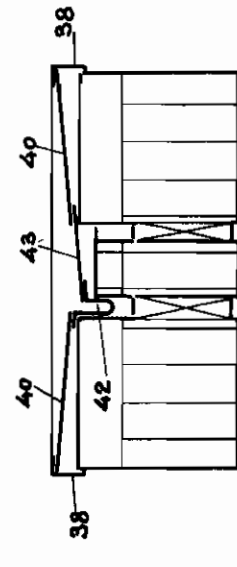


Fig. 5.

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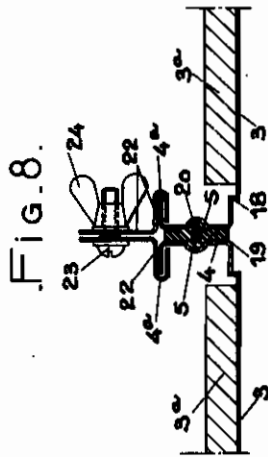


FIG. 8.

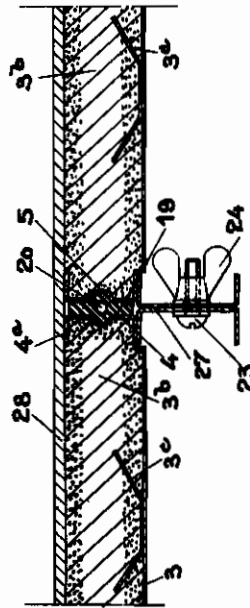


FIG. 9.

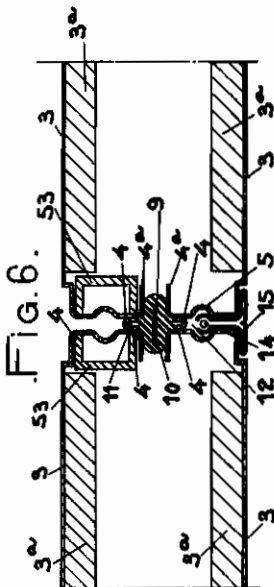


FIG. 6.

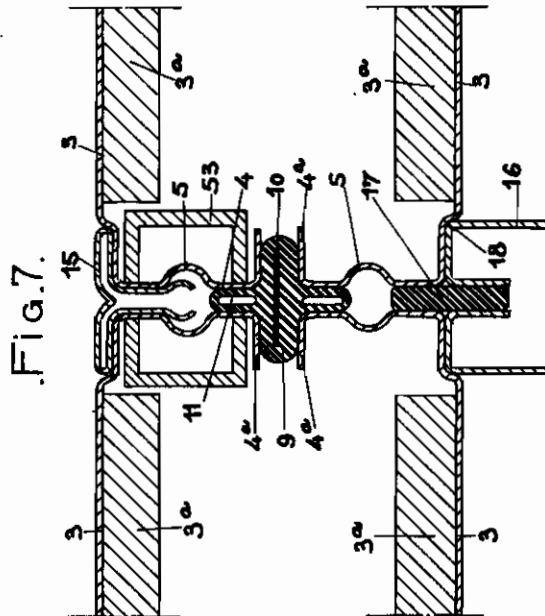


FIG. 7.

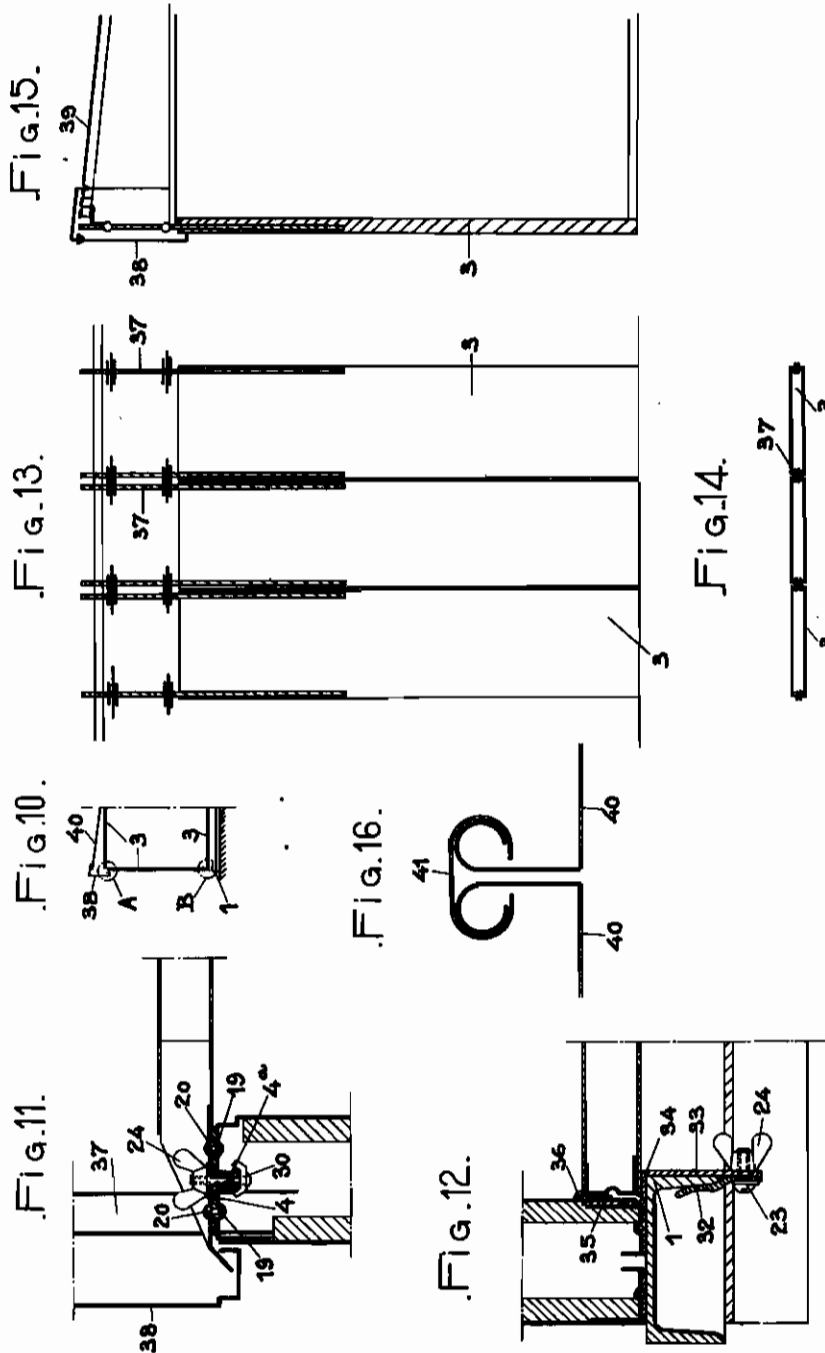
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Fig. 20.

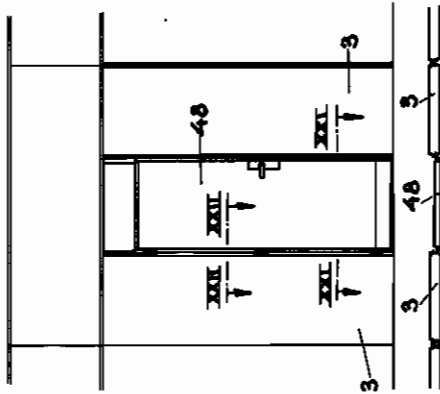


Fig. 21.

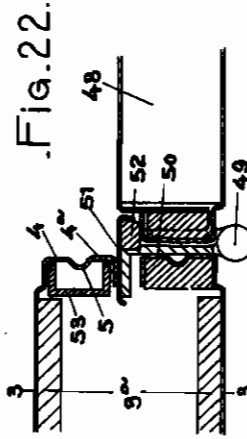


Fig. 22.

Fig. 18.

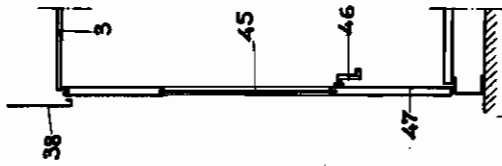


Fig. 17.

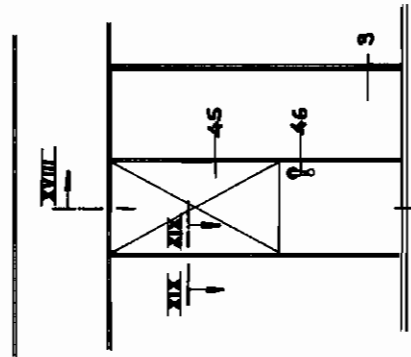


Fig. 19.

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ALIEN PROPERTY CUSTODIAN

PROCESS AND MEANS FOR THE CONSTRUCTION OF HOUSES WITH STANDARD PANELING

Raymond Béhin, Gennevilliers, France; vested in the Alien Property Custodian

Application filed May 15, 1940

The present invention covers a process and means for the construction of houses with standard panels, namely, sheet metal elements.

The construction of a sheet metal house cannot be executed in a practical manner except when carried out with standard parts produced in large quantities and fabricated with extreme care.

In a general way, the invention consists of a structural steel base provided with projected dowels for centering, their spacing being absolutely true. On this chain-bond and between the centered dowels the standard parts are to be erected, appropriate spacings being interposed between the parts.

To carry out this process, the invention consists of the following operations:

1. Laying the base forming part of the chain-bond.
2. Erecting the closets thereby constituting supporting points.
3. Erecting an exterior panel.
4. The whole is held together by the placing of a ceiling panel, which is fitted in by a tight joint acting like a box cover.
5. The whole thus constituted stays in place before the final tightening of a few bolts with hand operated nuts.

The invention covers the means for carrying out the process and mainly covers the following points applied separately or in a number of combinations:

(a) Closets or metal columns are provided to establish the supporting points and mainly in the central portion of the house.

(b) The standard parts are composed of metal panels the edges or ends of which are beaten down at a 90° angle, the marginal parts of these extremities are themselves beaten down so that the section takes the form of a U.

(c) The edges are provided with a groove which at the lower extremity are fitted to the dowel which determines the centering specially for the vertical partitions and which permits the fitting of a joint or an electric feeder or other.

(d) The standard panels provide, for the vertical partitions and the ceilings, an isothermic lining.

(e) The standard panels offer to the floors a concrete fill, or other similar, binding means for the concrete, the latter being previously attached to these panels.

(f) The standard panels are set each to the other in a manner similar to the tongue and groove used in parquet floors.

(g) The material ensuring the jointing also serves as a water-tight joint as well as an expansion joint.

(h) The grooves provided on the beaten down edges or ends of panels permit mainly: the fitting of a joint cover, the adaptation of rubber joints, the establishment of a raising and lowering method on a ball bearing course for the sliding panels, to provide accommodations for electric conduits, or other.

(i) A few of the vertical panels, externally located, are provided with stanchions for the setting of string-courses.

(j) The jointing of the different elements between themselves is done by bolts and earnuts or by regular bolts and streaked nuts.

(k) The assembling of the panels or the roof plates is made by the use of a split tubing slid over the adjacently raised ends of these panels in a manner as to ensure a tight bind and without screws.

The invention equally covers a house constructed according to it which offers a central corridor flanked on each side by closets constituting supporting points, the floor, the walls and the ceiling being erected by the aid of the standard elements whereas the roof is composed by plates inclined toward the closets.

The invention furthermore covers other special points which are mentioned in the following text making reference to the attached drawing, given only as an example, in which:

Figure 1 is a perspective of a channel iron forming the chain-bond base of the house.

Figure 2 is a plan with a horizontal section showing the erection of the standard elements, constituting the vertical panels.

Figure 3 is a part view corresponding to the preceding figure but at a larger scale.

Figure 4 is a sketch plan of a house carried out according to the invention.

Figure 5 is an elevation, in transverse section, of the house represented by the preceding figure.

Figure 6 is a section showing the putting together of standard elements constituting vertical panels.

Figure 7 is a section showing the setting up of vertical panels perpendicular to each other.

Figure 8 is a sectional elevation showing the joining between the standard elements constituting the ceiling panels.

Figure 9 is a sectional elevation showing the joining of the standard elements constituting the floor.

Figure 10 is a part elevation in transversal sec-

tion of a house carried out according to the invention.

Figure 11 is a large scale view detailing the portion indicated in "A" on the preceding figure.

Figure 12 is a large scale view detailing the portion indicated in "B" on Figure 10.

Figure 13 is a rough sketch of the exterior vertical panels.

Figure 14 is a corresponding plan.

Figure 15 is a side elevation of these panels and of the setting-up of the string-course and of the roof.

Figure 16 illustrates in section the assembling of the roof panels.

Figure 17 is an elevation showing the setting of a window.

Figure 18 is a section made along the line XVIII—XVIII of the preceding figure.

Figure 19 is a larger scale section made along the line XIX—XIX of Figure 17.

Figure 20 is an elevation showing the setting up of a door.

Figure 21 is a section made along the line XXI—XXI of the preceding figure.

Figure 22 is a large scale section made along the line XXII—XXII of Figure 20.

The metallo structure forming the base is composed of shapes 1 (Fig. 1) preferably channels, set on a masonry foundation or other.

These shapes 1 have projections 2 which represent cylindrical dowels equidistant D corresponding to the width of the standard panels 3. These panels, as especially shown on Figure 2, are, each one, composed of a sheet metal 3^a interiorly provided with an isothermic layer 3^b of appropriate material. The edges of these panels are partly beaten down for rigidity and reinforcement 4. Each member 4 has a longitudinal groove 5 facing the longitudinal groove 5 of member 4 of the adjacent panel 3. All panels have the same shape; the reinforcing edges or ends 4 with groove or longitudinal rabbet 5. These rabbets generally offer accommodations for joints, as previously described. However, for the exact setting-up of the vertical panels, the lower part of each rabbet 5 stands securely on the corresponding dowel head 2 of the metallic structure in such manner that the setting in place of the panels should be quickly effected and with a great deal of precision. For the vertical partitions as shown on Figure 2, the panels are erected in pairs with a view of building-up a double partition provided with an air-space.

For the construction of a house, as particularly illustrated by Figures 4 and 5, there are erected metallic closets to begin with, which can eventually be replaced by metallic posts. These closets 8 constitute supporting points for the central portion of the house.

Between two pairs of vertical panels a special joint is used as shown on Figure 6. This joint which in section has the shape of a cross, is fixed on one end between the beaten down edges 4 and on the other end between the beaten down marginal parts 4^a of these edges and ends. The joints also serve as a binder between the two neighbouring panels, as well as to absorb the eventual expansions.

These rubber joints 8 are internally reinforced by metal bands 10 and 11. The spaces 12 made available by the grooves 5 are utilised for the passage of electric wiring or other usages 14. These wires etc. are placed in some cases between the grips of spring steel pincers 15 which in section take the form of a T. These pincers

15 are forced in place as shown on Figure 6 and are thereafter pressed in position. These pincers 15 constitute at the same time a joint cover.

For the setting-up of a perpendicular partition 16, same is done as shown on Figure 7. To do this, a joint 17 is provided and the perpendicular partitions 16 are kept in place between the joint 17 and the offsets 18.

The ceiling is constructed, as shown on Figure 8, by the ordinary panels 3 between the beaten down edges in which are introduced joints provided with a tubular passage 20 for the electric wires or others. Two adjacent panels are connected by fasteners 22 set on the marginal beaten down parts 4^a of the edges or ends 4. These fasteners 22 are held in place by the bolts 23 provided with earnuts 24 in order that the erection can be carried out without tools.

The floor is constructed as shown in detail on Figure 9. The metal linings 3 of the panels are not provided with an insulating material 3^a but with a cement fill 3^b, the panels 3 being provided with sheet metal anchors 3^c, as shown. The slabs thus constituted are set in place by means of a joint 19 identical to the one used for the ceiling panels. In this joint 19 there is provided a passage 20 for the electric wires or others. The slabs are bound to each other by means of channels 27 previously fixed on the linings 3 of the panels and which are fastened by the bolts 23 and the earnuts 24. The slabs are thereafter covered by an appropriate floor material, as shown on Figure 9.

The facings 3 have their beaten down ends as shown on 4, not only on the two opposite sides, but also on the four sides in order to ensure a fitting with joint not only for the adjacent panels but also with the perpendicular panels. The connection of the vertical panels with the ceiling and the floor elements is particularly noted on Figures 11 and 12.

On Figure 11 the joints 18 are used with reinforcements 20. The connection between the upper part of the panels 3 with the ceiling elements or the roof structure, is done by the bolts 30 the heads of which are hookform and fastened to the beaten down marginal parts 4^a, the earnuts 24 offering a hand operation without any tool.

The connection of the vertical partitions to element 1 of the structural steel floor is assured by the hooks 32 fitted on a metal strip 33 by means of bolts 23 provided with earnuts 24. This metal strip 33 has a shoulder 34, on which rest the floor elements and a vertical strip 35 for attaching the vertical panels. A rubber joint is provided at the point 36 between the vertical partition and the floor.

On the vertical partitions are fixed the uprights 37, as clearly shown on Figures 13, 14 and 15, and on which are attached, on one side string-course 38 and on the other side, the elements 39 of the roof.

The assembling of the roof panels 40 is made by the split tubes 41 as shown on Figure 16. These elements 40, the pitch of which is directed toward the central part of the house, end either directly (to the left on Figure 5) in the gutter for the evacuation of waters, or, by the intermediate panels to this gutter (to the right on Figure 5).

The windows are constructed, as clearly shown on Figures 17, 18 and 19, of sliding glass 45 set in sliding grooves 46 held in place between the parts 4^a of panels 3 (Figure 19). This glass 45 is actu-

ated in its vertical course by a handle 46 and can be hidden in the lower compartment 47.

The doors 48 (Figures 20, 21 and 22) are hung and jointed at 49, the metal parts 50 carrying the lower elements of the articulations, rigidly fixed on the part 4^a with a metal band 51 thereby constituting a support for a rubber band 52 or other.

The beaten down edges 4 of the panels can be reinforced, as shown on the various figures, by the internal steel shapes 53.

In a general way, it will be noticed that the various panels 3 with beaten down edges 4 and with the end parts 4^a of these edges also beaten down, are identical for the building up of different partitions (wall, ceiling, floor). However these panels 3 possess, within the vertical partitions or the ceiling, an isothermic lining 3^a, and for the floors a cement fill 3^b or other.

Besides, the erection of the different panels, is carried out with great precision, due to the structural steel base and the placing of the panels in their right position, and is speedily done without any tool, due to the earnuts used. The pulling down of the house can also be done with great speed.

It is evident that the described methods also shown graphically, are only given as an indication and are not limited to it. All modifications or variables which do not at all change the main characteristics hereinabove stated nor the pursued aim, stay included within the framework of this invention.

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