

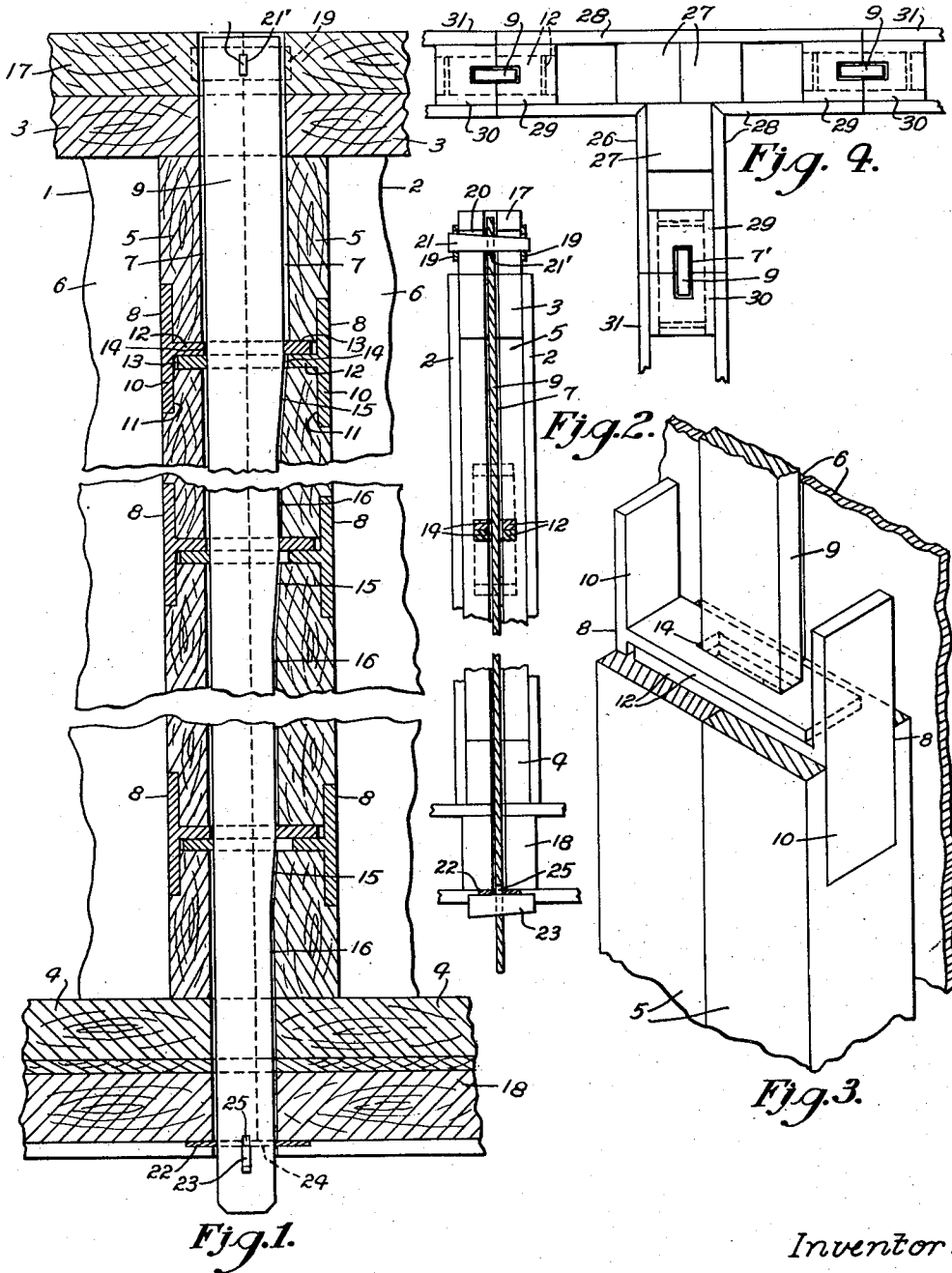
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PANEL AND CONNECTING MEANS THEREFOR

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PANEL AND CONNECTING MEANS
THEREFOR

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1 This invention relates to prefabricated building or like construction and more particularly to structures including means for securing together in erected position prefabricated panels.

It is an object of the present invention to provide prefabricated panels and a clamping device for association therewith and by means of which such panels may be erected in a rapid, efficient and satisfactory manner. Another object is to provide a panel and clamping device which are convenient and inexpensive to manufacture and which may be employed to form a building or the like with merely a simple tool, such as a hammer, and without supplementary fastening means, such as nails and the like. A more particular object is to provide simple means for securely anchoring together in close fit prefabricated panels which may constitute the walls, roof, floor or any portion of a building.

Other objects, advantages and details of the invention will become apparent as the description proceeds with particular reference to the accompanying drawing, in which,

Figure 1 is a sectional side elevation of the prefabricated panels and clamping device in erected position,

Figure 2 is an end elevation, partly in section, of a panel and clamping device,

Figure 3 is a fragmentary sectional view, in perspective, of the clamping device, and

Figure 4 is a plan view showing the invention applied as a corner structure.

In the drawing, 1 and 2 are prefabricated building panels, each comprising a frame consisting of an upper member of plate 3, a lower member or sill, 4 and studs 5, and facing sheets 6 of plywood or the like. Extending centrally along the outer lateral edges of each panel is a groove or recess 7 formed in the stud and upper and lower members. It will be observed that, when the panels are in erected position with their edges in abutting relation, the grooves 7 of such abutting edges are in registry to form the rectangular opening 7' shown extending from top to bottom of the panels.

The clamping device in accordance with the invention comprises a plurality of brackets each consisting of a pair of T-shaped members 8, and a spline member 9, all said members being preferably formed of metal. The members 8 are mounted on the studs 5 with their heads 10 seated in recesses 11 on the inside surface of the stud and are fastened to the stud by any suitable means, as by screws or the like (not shown). The legs 12 of the series of members on one stud ex-

2 tend through openings 13 in the stud and project into the corresponding openings 13 in the adjoining stud. The legs 12 of each pair of members are adapted to be placed in overlapping abutting relation, as clearly shown in Figure 1, the openings 13 being of sufficient size to accommodate the two legs.

Each of the legs 12 of the brackets is provided with a rectangular opening 14, which are adapted to be more or less in registry when the adjacent panel edges are in engagement with each other as shown in Figure 1. The openings 14 of the series of members having their legs in upper relation with respect to the legs of the other series are progressively shorter in length from top to bottom of the panel. The openings 14 in the other series may be of uniform size.

The spline 9 is provided with a plurality of spaced inclined or wedging surfaces 15 on one edge thereof, the spline thus having a plurality of progressively narrower portions 16 from top to bottom thereof. The spline is of a maximum width adapted to be readily insertable in the opening 7'.

It will be observed that, when the spline is driven downwardly into the opening 7' and through the openings 14, the upper wedging surface 15 will engage the outer edge of opening 14 in the upper leg of the top member 8 and the opposite edge of the spline, which is in a single vertical plane, will engage the outer edge of opening 14 in the lower leg of the complementary member 8. Similarly, the next wedging surface 15 will engage the outer edge of opening 14 in the upper leg of the next bracket and the opposite edge of the spline will engage the outer edge of the opening 14 in the lower leg of the bracket. Similar engagement is adapted to take place between the spline and all the brackets provided.

Such engagement will draw the edges of the panels into tight-fitting engagement. The wedging surfaces 15 may be so arranged that such tight-fitting engagement occurs before the plane portions 16 of maximum width engage the edges of openings 14 whereby, should subsequent tightening of the joints between the panels be desirable, it is only necessary to drive the spline downwardly a short distance. However, this will generally be unnecessary since, with the spline locked in position, loosening of the joint will not normally take place. It is advisable that the opening 7' should conform closely in shape to that of the spline when the latter is in wedging position therein, as shown in Figure 1, and that the spline should fit somewhat snugly therein so that es-

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cape of moisture and vapour will be cut off to some extent thereby.

The spline may be locked in place in any suitable manner. However, it is proposed to lock the spline to the floor and roof sections of the building thereby accomplishing the double function of locking the spline in place and of rigidly securing the floor and roof to the wall panels. Referring to Figure 1, 17 is a roof panel frame member and 18 a floor panel frame member. The rectangular opening 7' is continued through such members as shown. A pair of metal plates 19 are fixed on either side of the member 17 and an opening 20 extends through the plates and member 17. A wedge-shaped member 21 is adapted to be driven through such opening 20 and to engage the upper edge of an opening 21' on the spline 9. A metal plate 22 is fixed to the lower surface of the floor frame member 18 and has an opening 24 therein for passage of the spline therethrough. A wedge-shaped member 23 is adapted to be driven through an opening 25 in the spline and to engage the lower edge of such opening and the lower surface of plate 22. The spline will thus be securely locked in place with the adjacent floor and roof panels rigidly clamped to the wall panels.

The invention may be readily applied in various ways to the provision and clamping of corner panels. Referring to Figure 4, a prefabricated corner panel 26 is provided having studs 27 facing sheets 28, and edge studs 29 formed in accordance with the invention and adapted to be clamped to the studs 30 of prefabricated panels 31 constructed in the manner previously described.

It will be understood that the invention may be applied to the prefabrication and erection of any enclosure, such as boxes, packing cases, crates, casings and the like. Use of the invention in the construction of packing cases or crates would render it possible to salvage such containers since they would be readily demountable without injury thereto and inconvenient form for storage or shipment.

In its broad sense, the invention is applicable to the clamping together of any two surfaces which are to be joined together in locked condition.

While three pair of clamping brackets have been employed in the panels illustrated it will be understood that any desirable number of such brackets may be provided.

It will also be apparent that various changes in the described details may be made without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. Means for clamping together two juxtaposed panels which comprises a plurality of pairs of spaced clamping brackets, each said bracket having a leg portion in overlapping relation with a leg portion of the other bracket of a pair and a head portion anchored in a different one of said panels, said leg portions each having an opening therein, at least a portion of all of said openings being in registry, and a spline driven through all of said openings and having a plurality of stepped wedging surfaces on one edge thereof each arranged to engage an edge portion of a different one of said openings.

2. Means for clamping together two juxtaposed panels which comprises a series of spaced clamping members anchored in one of said panels, each said member having a leg portion extending out-

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wardly from said panel, said other panel having recesses therein to receive the ends of said leg portions, a second series of spaced clamping members anchored in the other of said panels, each of said second series of members having a leg portion extending in overlapping contacting relation with one of said first leg portions, said first panel having recesses therein to receive the ends of said second series of leg portions, said leg portions each having an opening therein, at least a portion of said openings being in registry, the openings of at least one of said series of leg portions being successively smaller in size, and a spline driven through all of said openings and having a plurality of stepped wedging surfaces on one edge thereof each arranged to engage the edge portion of a different one of said openings of successively smaller size.

3. In a building structure, a pair of prefabricated building panels each having an edge stud for engagement with each other, means for securing said panels together comprising a series of spaced clamping members anchored in one of said studs and each having a portion projecting from said stud, said other stud having recesses therein to receive said projecting portions, a second series of spaced clamping members anchored in the other stud and each having a portion projecting outwardly from said other stud, the first stud having recesses therein to receive the latter projecting portions, all said projecting portions having openings therein at least partly in registry with each other, and a spline for insertion through all said openings, said spline having a series of wedging surfaces on one edge thereof for engagement with the edges of said openings.

4. In a building structure, a pair of prefabricated building panels each having an edge stud for engagement with each other, means for securing said panels together comprising a series of spaced clamping members anchored in one of said studs and each having a projecting leg, the other stud having recesses therein to receive said projecting legs, a second series of spaced clamping members anchored in the other stud and each having a projecting leg in overlapping and contacting relation with the lower surface of one of said first legs, said first stud having recesses therein to receive said second series of projecting legs, all said legs having openings therein at least partly in registry with each other, the openings in the legs of said first series of members being successively smaller in size from the top to the bottom of the panels, and a spline for insertion through all said openings, said spline having a series of wedging surfaces in different planes on one edge thereof adapted to engage the edges of the openings of said first series of legs, the opposite edge of said spline being plane and arranged to engage the edges of the openings of said second series of legs.

5. Means for clamping together a pair of panels each having an edge stud for engagement with each other comprising a series of spaced clamping members anchored in one of said studs and each having a leg projecting outwardly from the stud, said other stud having recesses therein to receive said legs, a second series of spaced clamping members anchored in the other stud and each having a leg projecting outwardly from said stud, said first stud having recesses therein to receive said second series of legs, openings in each of said legs in at least partial registry with each other, and a spline having a series of wedging

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surfaces in different planes on one edge thereof adapted to engage the edges of the openings of the first series of legs, the opposite edge of said spline being plane and arranged to engage the edges of the openings of the second series of legs.

6. A prefabricated building panel comprising frame elements at the edges thereof and facing sheets on either side thereof, the frame element of at least one edge of the panel being recessed at at least two spaced points, a metallic T-shaped member seated in each recess with its head substantially flush with the inner surface of said element, and the leg portion of said member extending through the element and projecting beyond the exposed face thereof, said element also having a groove in the exposed face thereof and extending from top to bottom of the element, said leg

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portions having openings therein, at least a portion of each of said openings being in registry with said groove.

7. A prefabricated building panel as defined in claim 6, wherein said openings are rectangular in shape and are of successively shorter length from top to bottom of said panel.

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