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R. J. OCKER
CONNECTING DEVICE FOR COMPOSITE PREFABRICATED
BUILDING CONSTRUCTION PANEL
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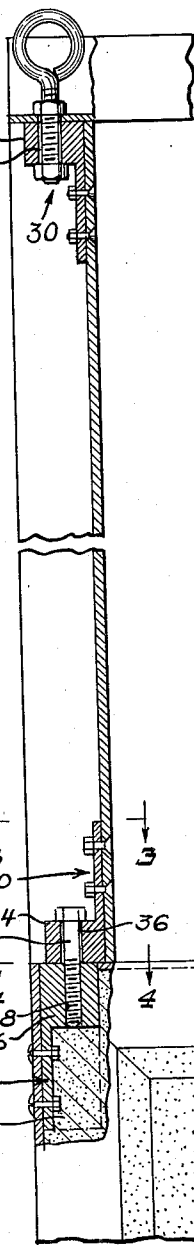
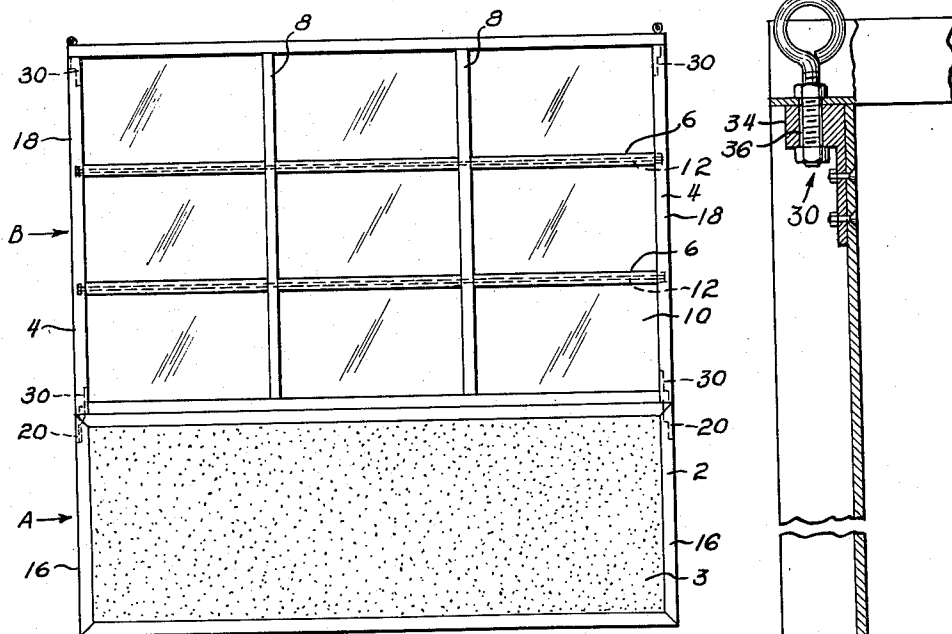


Fig. 5

Fig. 1

Fig. 2

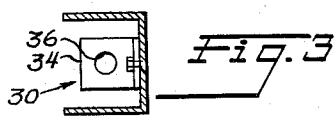
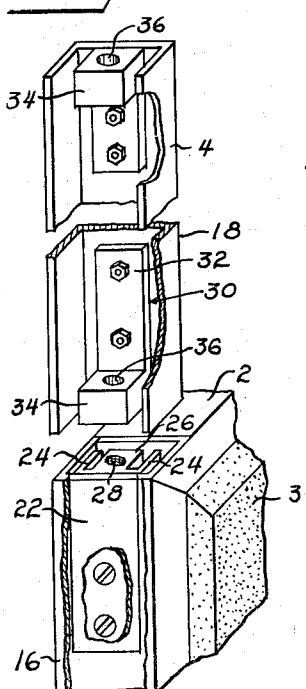


Fig. 3

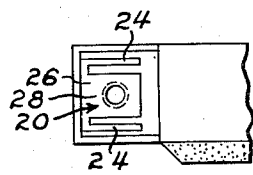


Fig. 4

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CONNECTING DEVICE FOR COMPOSITE PREFABRICATED BUILDING CONSTRUCTION PANEL

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1 Claim. (Cl. 189-34)

This invention relates broadly to building construction and, more particularly, to prefabricated building construction panels having parts or sections of different character, such for example, as an opaque section and a glass section.

It is the principal object of this invention to provide a composite building construction panel having at least two separate parts or sections which are separately manufactured and then connected to form the complete panel and, in such a composite panel, to provide means for connecting the two parts or sections, whereby they may be separately fabricated and then connected, or they may be separately transported to the building site where they may be connected and erected or, if desired, they may be erected and then connected. A further object of the invention is to provide means for connecting the parts or sections which, in addition to providing connecting means, also provide means for lifting and supporting the entire panel, or either section thereof, during transportation or erection.

The invention is described in the following specification and is illustrated in the accompanying drawings, in which:

FIG. 1 is a front elevational view of a composite panel of the type to which the invention related;

FIG. 2 is an enlarged sectional view taken through the left hand side frame members of the panel shown in FIG. 1, with parts broken away to show the connecting and supporting means provided by the invention;

FIGS. 3 and 4 are, respectively, cross sectional views taken on lines 3-3 and 4-4 of FIG. 2, and

FIG. 5 is a perspective view showing the connecting and supporting means provided by the invention associated with parts of the panel.

A composite building construction panel of the type to which this invention relates is shown in plan view in FIG. 1 of the drawing. This composite panel comprises a part or section A which is opaque, and a part or section B which is divided into one or a number of sections covered by glass, whereby it forms a window panel. The opaque section A is preferably constructed in the manner described and claimed in United States Letters Patent to Henry A. Berliner No. 2,934,934, and therefore comprises a surrounding metal frame 2 which is C-shaped in cross-section with its open side facing inwardly, and which defines a central space within which there is positioned a corrugated sheet of metal, not shown, the edges of which engage the inner surface of the C-shaped surrounding member so that this member and the corrugated sheet form the structural load-bearing member of the panel. As described in said Letters Patent the corrugated sheet within the surrounding frame 2 is embedded in a cast body of low-strength aggregate, such as perlite or the like, and one or both faces of this cast body may have integrally connected to it and covering it, a relatively thin layer 3 of hard, high strength concrete. The structure of this panel section is fully described and illustrated in the Letters Patent referred to and need not be further described or illustrated in this specification, reference being made to said Letters Patent.

The window panel B is formed by a surrounding frame 4 at least the side members of which are C-shaped in cross section with the open side facing outwardly, or oppositely to the direction in which the corresponding side

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frame members 2 of the panel A face. The window panel B is sub-divided into smaller sections by horizontal frame members 6 and vertical frame members 8 which intersect to provide a plurality of areas, each of which is covered by a pane of glass 10. In accordance with known practice, elongated tie rods 12 are extended along each horizontal frame member 6 between the side frame members 4 and may be threaded at one or both ends to receive nuts which engage the side frame members 4 to tie together the frame members forming and sub-dividing the panel B.

In accordance with this invention the panels A and B are constructed separately and may be connected together at the place of manufacture or, if desired, they may be separately transported to the building site, all in order to simplify and reduce the cost of manufacture, transportation and erection. These panel sections A and B may be connected together after manufacture or just before or just after erection into place and means are provided by the invention for connecting these panel sections and also for providing means whereby each panel section may be lifted and supported during either transportation or erection.

The connecting and supporting means provided by the invention are particularly shown in FIGS. 2 to 5 and comprise two co-operating members which are connected respectively to the side members 16 of the surrounding frame member 2 of the opaque panel A and to the side members 18 of the surrounding frame 4 of the window panel B. As stated hereinbefore, the surrounding member 2 of the panel A is C-shaped in cross section with its open side facing inwardly and receiving the edges of a corrugated sheet. This construction leaves a space within the frame member 2 adjacent each upper corner thereof within which one of the connecting members provided by the invention may be positioned and connected before the surrounding frame of the panel is filled with perlite, concrete or other aggregate, as shown particularly in FIGS. 2 and 4. Each connecting device 20 comprises a channel shaped metal member of relatively short length having a bottom 22 and side walls 24. The bottom of this member is positioned in face-to-face engagement with the inner surface of the side member 16 of the frame surrounding the panel A and is rigidly attached in this position by screws, welding, bolts or other suitable means. Within the channel member 20 and adjacent one end thereof, which is the upper end when the panel A is in place, there is provided a block 26 which is integrally connected to the bottom 22 of the connecting member and which may be positioned centrally between the side walls 24 thereof. This block 26 has a threaded hole 28 therethrough which is parallel to the side walls 24 of the connecting member and therefore extends longitudinally of the connecting member. When the panel A is completed the entire frame 2 is filled with solid aggregate and the connecting member is embedded therein with its upper end surface, including the upper end surface of the block 26, exposed and flush with the upper surface of the horizontal C-shaped member which forms the upper boundary of the panel A. In this position and condition of the parts the upper end of the threaded hole 28 in the block 26 is exposed for engagement by a bolt or other threaded device.

The second connecting device provided by the invention is positioned within and rigidly connected to each side frame member 18 of the window panel B and is positioned therein adjacent one end of such side frame member, which is the lower end thereof when the panel is erected in place above the opaque panel A. Each of these connecting devices 30 is an integrally formed member having an elongated flat part 32 which is connected by screws, welding, bolts or the like in face-to-face relation to the bottom of the outwardly facing C-shaped side frame

member 18 of the window panel B, in such a position that it will be adjacent and above the connecting member 20 which is attached to the opaque panel A, which is described above, when the panel sections A and B are brought together in co-planar relation with the section B above the section A. At the lower end of the connecting device 30, which is the end adjacent the upper end of the side frame member 16 of panel A when the two panel sections are assembled, the connecting member 30 is provided with a block 34 which is integrally connected to the flat part 32 and which has a plain or threaded hole 36 therethrough which extends in the direction of the length of the side frame members 18 of the window panel B. The connecting devices 20 and 30 and their parts are so constructed, positioned and arranged that when they are in position within their respective side frame members the holes therethrough are aligned in the direction of the side frame members of the panel sections A and B. In this position of the parts a threaded bolt 50 may be passed through the hole 36 in the upper connecting device 30 and threaded into the hole 28 in the lower connecting device 20 to rigidly but releasably connect the two panels together. As stated, such connection may be effected at any time after the panel sections have been separately constructed.

In addition to providing means for connecting together the panel sections A and B, the connecting devices provided by the invention also provide means for lifting and supporting each panel section separately, or the composite panel after connection of its two sections. As stated above, a connecting device 20 is provided at each upper corner of the panel A, as shown in FIG. 1. Before the panel sections A and B are connected together an eyebolt may be threaded into the hole 28 in each of these connecting devices 20 and may be used to lift and support the panel section A. As also stated above, a connecting device 30 is provided at both lower corners of the panel section B and, while these connecting devices are principally used in co-operation with the connecting devices 20 to connect together the two panel sections, it will be apparent that an eyebolt may be threaded into the hole 36 in each of these connecting devices 30 for lifting and supporting the panel section B. In addition, a connecting

device 30 may be connected to each of the side frame members 18 of the panel section B, as shown in FIGS. 1 and 2, and an eyebolt may be threaded into each of these connecting devices for lifting and supporting the panel section B in its normal upright position.

While I have described and illustrated in this specification one form which the invention may take, it will be understood that other embodiments of the invention, as well as modifications of that disclosed, may be made and practiced without departing in any way from the spirit or scope of the invention, for the limits of which reference must be made to the appended claim.

What is claimed is:

A composite prefabricated building construction panel comprising two separate panel sections connected in coplanar relation along adjacent abutting sides, one of said panel sections comprising a surrounding frame member of inwardly facing C-shaped cross section, the other of said panel sections having side members of outwardly facing C-shaped cross section extending at right angles to the abutting sides of the two panel sections and aligned with the side edges of the first panel section, a connecting device positioned within the surrounding frame member of the first panel section and rigidly connected thereto and having a threaded hole therethrough opening within one of the C-shaped side members of the second panel section when the two panel sections are positioned in coplanar relation with their abutting sides together, a second connecting device positioned within a C-shaped side member of the second panel section and rigidly connected thereto and having a hole therethrough aligned with the threaded hole in the first connecting device, whereby a connecting bolt may be inserted through the aligned holes to connect the panel sections.

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