

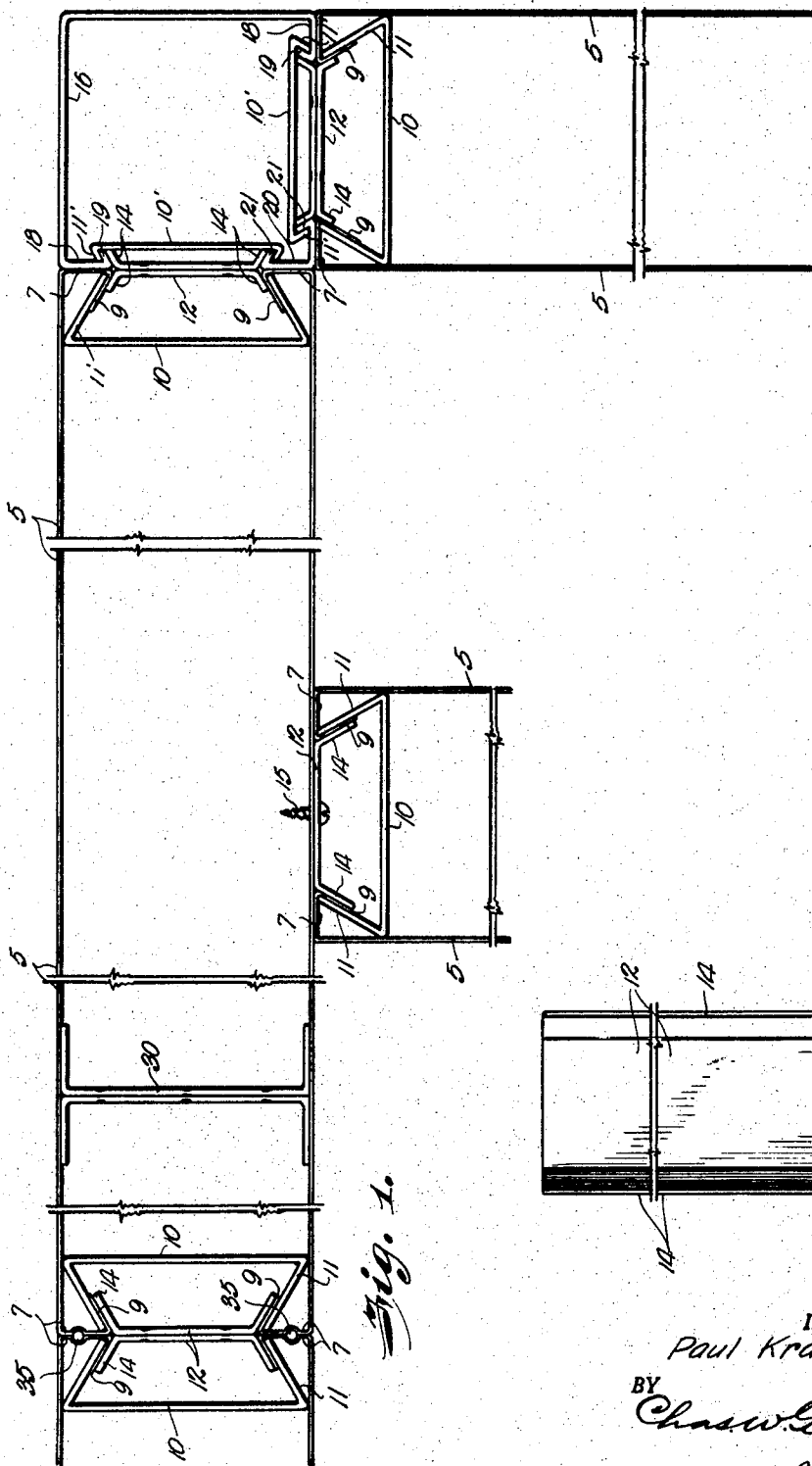
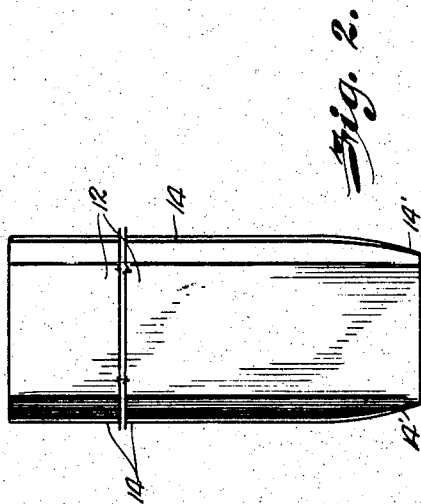
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STRUCTURAL CONNECTING AND SUPPORTING UNIT

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STRUCTURAL CONNECTING AND
SUPPORTING UNIT

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1

The present invention relates to building structures and the like, with particular reference to prefabricated work of this character, and aims to provide practical improved units or assemblies with a view to simplifying the preparation of the parts of such constructions as well as the work of assembling the same.

Accordingly an important object of the invention is to devise an improved and simplified unit or assembly which will serve as an efficient joint or connecting means for suitable panel sheets, by clamping engagement with the edges thereof, (without requiring the use of screws or bolts or like fastening means), and at the same time act as sturdy stud or supporting means for such panel structure without the necessity of providing other skeleton framework for the supporting function.

It is likewise an object of the invention to provide equally practical units or assemblies for serving as connecting and supporting means for such panel work at the corners or partitions of commercial building constructions and the like, where these types of prefabricated materials are adapted to be used with economical and efficient results.

The invention further contemplates an improved construction which is adapted not only for producing smooth and finished exterior surfaces, but which also provides for accommodating all the usual or necessary utilities as regards plumbing, insulation materials, etc., while permitting repairs or replacements to be taken care of as may be required.

With the foregoing general objects in view the invention will now be described by reference to the accompanying drawing illustrating an example of construction suitable for the embodiment of my proposed improvements, after which those features and combinations deemed to be novel and patentable will be particularly set forth and claimed.

In the drawing—

Figure 1 is a plan view illustrating a typical sectional panel and corner construction having prefabricated connecting and supporting assemblies embodying the present features of improvement; and

Figure 2 is an enlarged detail view of one of the tie or clamping elements forming a part of connecting and supporting assemblies.

Referring now to the said drawing in detail, this illustrates the application of my improvements in relation to wall construction, of the double and spaced panels type, including corner posts and intermediate studding or other support-

2

ing means, partition walls and connections or accessories.

Accordingly, panel-forming sheets 5 of metallic material, of any desired size and gage, are appropriately shaped at their sides or end edges to form transverse inwardly projecting end portions 7 which in turn are again bent at acute angles to form terminal flange portions 9 projecting in the direction of the body portion of the panels.

For connecting adjoining panel units or sections a combination stud and panel-connecting means is employed in the form of an assembly comprising a pair of bracing and clamping elements 10 and a connector clamping element 12 cooperating with said pair of bracing elements for clamping the flange portions 9 of the panel sections. Each of the bracing members 10 is of a width corresponding to the space between the sheets 5 of the panel sections, and is formed with side flanges 11 projecting in converging relation for bringing said flanges 11 into clamping engagement with one face of each of the corresponding panel flanges 9.

The connector element 12 is constructed by joining together two similar flanged members, that is, having body portions of a width approximating that of the space between the end portions 7 of the panels and joined back to back and with the flanges 14 thereof projecting in diverging relation or at appropriate angles for cooperating with the flanges 11 for effecting secure clamping engagement with the flanges 9 of the panel sections, as illustrated in Figure 1.

Thus a firm and rigid supporting structure is provided at the joints between panel sections, which affords not only all the necessary connecting means between the sections but also provides adequate bracing or supporting means due to the abutting engagement of the transverse projections and the bracing of the body portions of the clamping members 10 against the inner faces of both sides of the panel sections, and all bonded securely together by means of the tie and clamping members 12 with their flanges 14, and thus eliminating the necessity for any other or accessory steel frame supporting structures of any kind such as are usually required.

It is obvious that the elements of construction just described are readily adaptable to corner and partition wall assemblies, as illustrated in Figure 1.

For example, for corner post structures a suitable corner housing 16 is formed with inturned right angle projections 18 for abutting against the outer transverse projections 7 of correspond-

ing panel sections of the wall and terminating in diverging flanges 19; and for abutting against the inner projections 7 of the wall panels a right angle corner piece 20 is provided as a filler having the angular or converging flanges 21 for clamping engagement between the flanges 14 of the tie members 12 and the flanges 11' of the clamping members 10'. In this relation it will be seen that the clamping members 10 and tie members 12 serve the same function as above described for the combination stud and panel structure, while the accessory clamping elements 10' function primarily as clamping means for anchoring said tie members to the corner post assembly.

For branch panel sections, such as partition walls and the like, a joint connection may be made at right angles to the first wall, as by securing one of the connector or tie members 12 to the outer face of one of the panel sheets 5; this connection may be made by welding or by means of a self-threading screw 15 as illustrated. The clamping members 10 also form part of such assembly, for panel securing and bracing purposes, thus providing a stud construction as before.

It is deemed preferable in shaping the tie, or connecting and clamping members 12, to taper the same off somewhat toward one end, as illustrated at 14' in Figure 2, for facilitating the assembly of the same into their operative or panel-connecting relation.

It will thus be apparent from the foregoing that an efficient and economical structural assembly is provided for carrying out all the desired objects of the invention, both as an effective connecting and clamping means between panel sections, and also as a rigid and sturdy column or supporting stud and stress member for the joints occurring between adjoining panels or wall sections. The improvements are of course adapted for varied uses or applications, in the construction of walls, floors, roofs, or structural work of any similar character. One great advantage of the improved construction is its self-contained structural sufficiency, in requiring no additional supporting means, and also the elimination of the use of the extra fastening means such as screws, bolts and the like, and without sacrificing any security or rigidity in the finished assembly. Another important advantage is the provision of a double-panel construction in which both sides are completed with a smooth exterior finish needing no further finishing treatment, or any additional trim or finishing material—although such may be added if preferred.

Moreover the provision of the interwall space due to the double-panel structure, offers great advantages in connection with various types of building and other constructions, inasmuch as this space can be adapted to many purposes, as for insulation or the location of various utilities, for cooling or vapor-retention chambers and the like. Adaptations of the structure can readily be made to accommodate varied special requirements of this sort. Obviously the improved construction is of a type which simplifies greatly the production of the necessary materials in the form required for the units or assemblies, and at very great saving of cost for transportation by being properly shaped in their prefabricated but unassembled condition.

Moreover it is pointed out that the improved construction is such as to insure ease of repair, or the replacement of any section, at any loca-

tion or point in any given installation where such repair operation becomes necessary.

In some installations such as floors, roofs or like construction where an extension of the interwall spacing makes it necessary, conventional means such as suitable channel members 20 may be employed as needed to absorb the additional stresses, as indicated in Figure 1.

Also suitable moisture sealing means, for example the roll and bead structure indicated at 35 in Figure 1, may readily be introduced in some cases, as in roof panel construction, if desired.

It will be understood, of course, that any size and gage of metal strips or sheets 5 may be employed, and that the joints or connecting assemblies may run either vertically or horizontally or in any direction; and also that the clamping elements 12 may be constructed in any size and length and therefore need not be made to run continuous throughout the assembly in all cases.

While I have illustrated and herein described a very practical and efficient embodiment of the improvements comprising my invention, it is obvious that various formal changes and modifications may readily be made while still embracing the essential characteristics of the invention; and I therefore desire to be understood as reserving the right to make such variations and modifications as may fairly fall within the spirit and scope of my invention as defined by the appended claims.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. Structural connecting and supporting means of the character described comprising, a pair of sheets of material having transversely extending portions in abutting relation and terminating in securing flanges, a rigidly held supporting structure comprising a clamping and supporting element engaging each of said sheets of material, and a tie clamping member having marginal portions cooperating with said supporting elements for effecting clamping engagement with said securing flanges.

2. Structural connecting and supporting means of the character described comprising, a pair of sheets of material in spaced relation and having transversely extending portions in coplanar relation for abutting purposes and terminating in securing flanges, and combination clamping and fixed and rigidly held supporting means comprising a supporting member engaging both of said sheets of material and a clamping element having marginal clamping portions cooperating with said supporting member and effecting clamping engagement with both of said securing flanges.

3. Structural connecting and supporting means of the character described comprising, two pairs of sheets of material each having transversely extending portions in abutting relation and terminating in securing flanges, said pairs of sheets being arranged in spaced relation, and combination clamping and supporting means comprising an interior supporting member engaging both sheets of material of each pair, and a clamping element having marginal clamping portions cooperating with both of said supporting members for effecting clamping engagement with all of said securing flanges.

4. Structural connecting and supporting means of the character described comprising, a pair of sheets of material in spaced relation and having transversely extending portions in coplanar relation for abutting purposes and terminating in

5

diverging securing flanges, a combination clamping and securing means comprising a fixed and rigidly held supporting member engaging both of said sheets of material and formed with converging sides, and a clamping element having diverging marginal portions cooperating with both sides of said supporting member and effecting clamping engagement with both of said securing flanges.

5. Structural connecting and supporting means of the type described comprising, two pairs of sheets of material each having transversely extending portions in abutting relation and terminating in angularly bent securing flanges, said pairs of sheets being arranged in spaced relation, and combination clamping and supporting means comprising an interior supporting member engaging both of said sheets of material of each pair and formed with converging sides, and a clamping element having marginal clamping portions cooperating with the converging sides of both of

6

said supporting members for effecting clamping engagement with all said securing flanges.

6. A structural corner assembly of the character described comprising, two pairs of sheets of material each having transversely extending portions for abutting purposes and terminating in securing flanges, said pairs of sheets being in angular corner-forming relation to each other, a supporting corner member having portions in abutting engagement with the transverse portions of the outer sheets of material, a filler member in abutting relation to the transverse portions of both of the inner sheets of material, an interior supporting member engaging both sheets of material of each pair thereof, and clamping means cooperating with each of said supporting members and also with said filler member for effecting clamping engagement with all said securing flanges.

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