T. H. KANE.

PROCESS OF CONSTRUCTING BUILDINGS.

APPLICATION FILED AUG. 28, 1916.

1,253,387.

Patented Jan. 15, 1918.

2 SHEETS—SHEET 1.

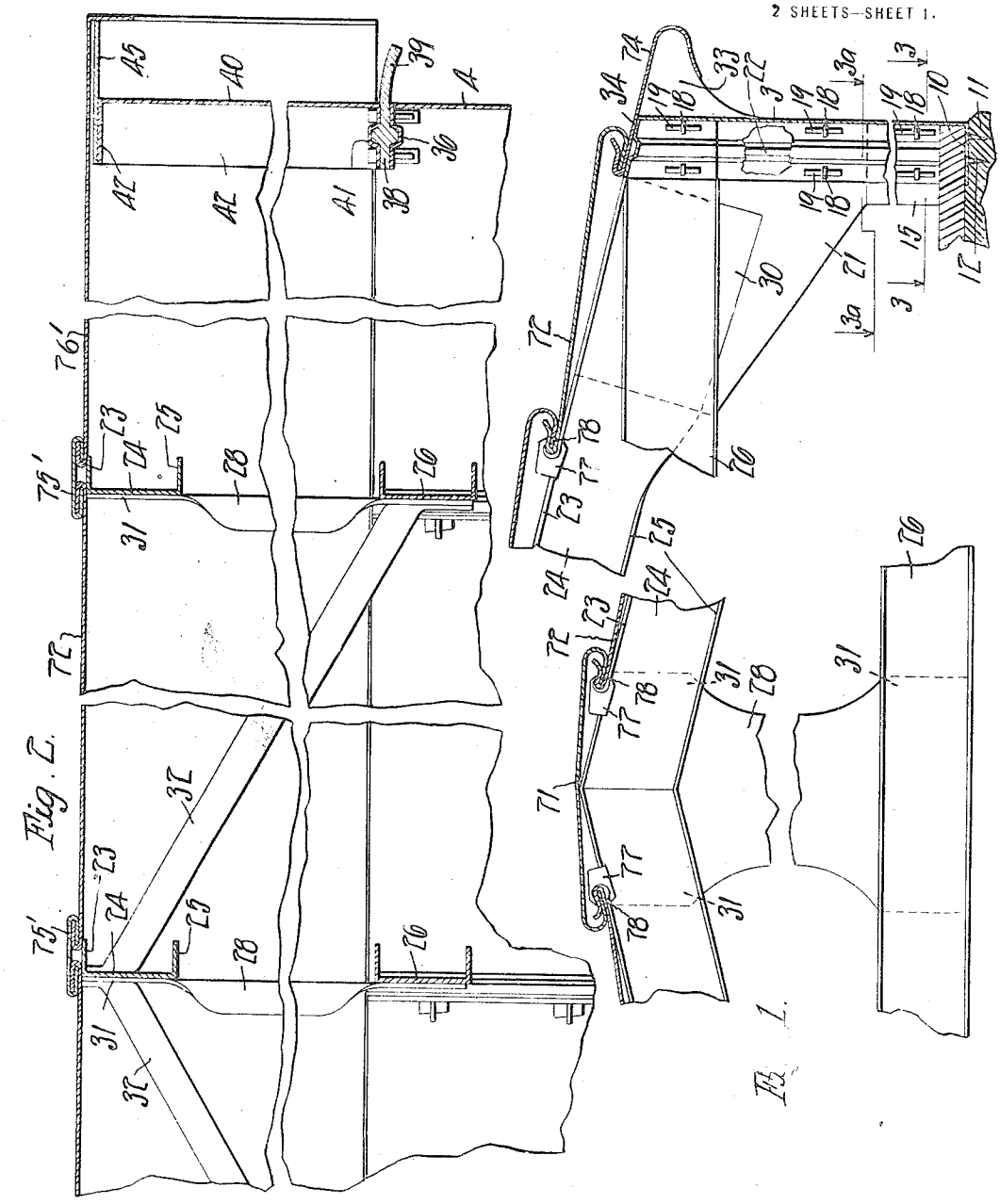


Fig. 2.

Fig. 1.

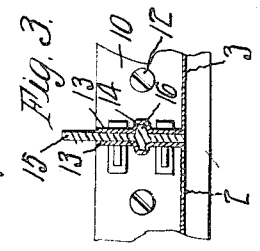


Fig. 3.

Witness

D. McCutcheon

Inventor

Thomas H. Kane,

By Pagelsen & Spencer

Attorneys

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2 SHEETS—SHEET 2.

Fig. 4

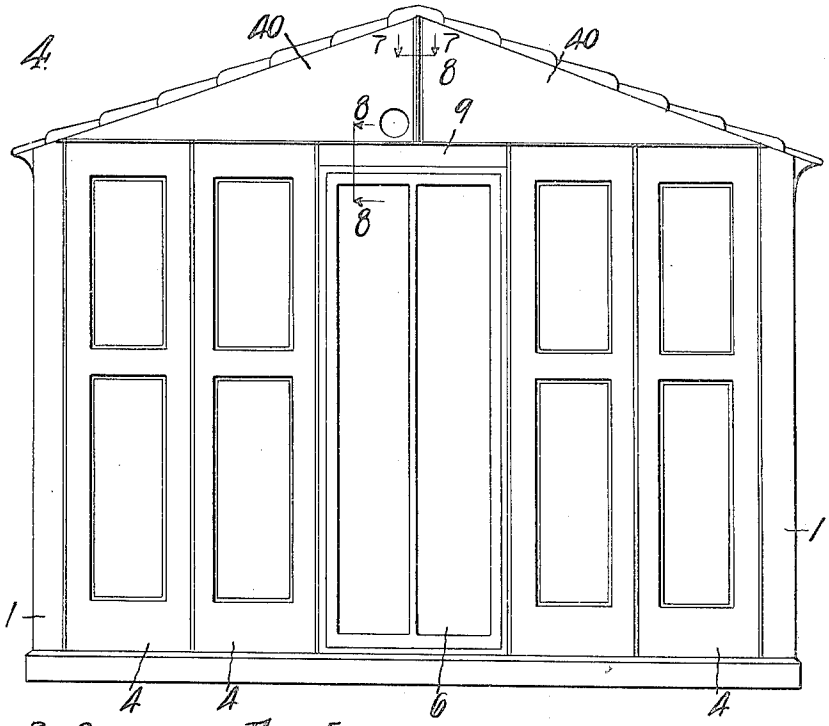
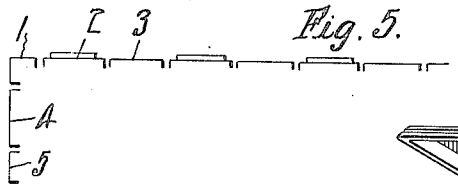


Fig. 5.



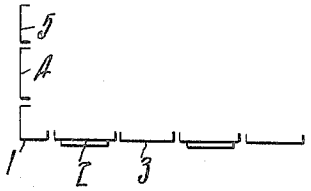


Fig. 6.

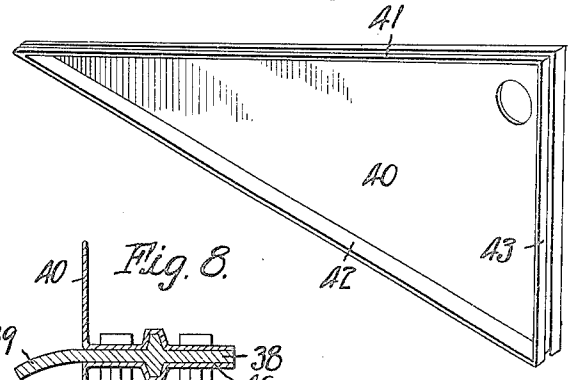


Fig. 7.

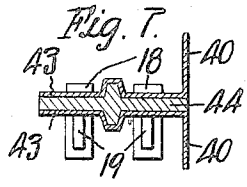
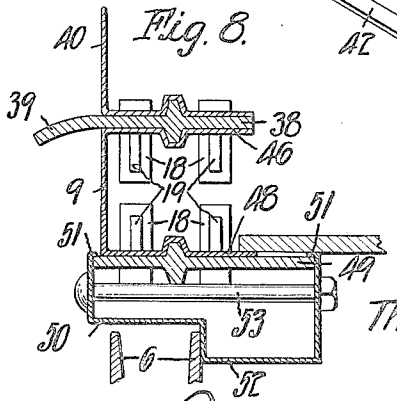


Fig. 8.



Witness

L. M. Patee

Inventor

Thomas H. Kane,

By Pagelsen & Spencer

Attorneys

UNITED STATES PATENT OFFICE.

THOMAS H. KANE, OF YOUNGSTOWN, OHIO, ASSIGNOR TO TRUSSED CONCRETE STEEL COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

PROCESS OF CONSTRUCTING BUILDINGS.

1,253,387. Specification of Letters Patent. Patented Jan. 15, 1918.

Original application filed December 30, 1915, Serial No. 69,330. Divided and this application filed August 28, 1916. Serial No. 117,226.

To all whom it may concern:

Be it known that I, THOMAS H. KANE, a citizen of the United States, and residing at Youngstown, in the county of Mahoning and State of Ohio, have invented a new and Improved Process of Constructing Buildings, of which the following is a specification.

The present invention relates to a metal building, particularly suitable for portable or temporary hospitals and schools, election booths and the like, and its object, briefly stated, is to provide very cheaply a construction that possesses, in greater measure than structures heretofore known, adaptability for size and special conditions, ease of erection, compactness for transportation and general capacity for service.

This application is a division of my application for patent Serial Number 69,330, filed December 30, 1915, for building construction; and the features of the invention claimed in the present instance relate to a process whereby the parts of the building disclosed in the prior application are rapidly and easily assembled without the use of falsework.

In the drawings, Figure 1 is a fragmentary transverse vertical section through the building. Fig. 2 is a fragmentary vertical section corresponding thereto. Fig. 3 is a section on either of the lines 3—3 or 3^a—3^a of Fig. 1. Fig. 4 is an end view of the building. Fig. 5 is a diagrammatic horizontal section showing the relation of the panels to one another. Fig. 6 is a perspective view of one of the plates for the gable end. Figs. 7 and 8 are sections on the lines 7—7 and 8—8 of Fig. 4.

As shown in Figs. 4 and 5, the external wall surface of the building is formed, for the most part, of corner panels 1, side panels 2, side panels 3 (which differ from the panels 2 merely in that windows or ventilators are omitted), end panels 4, narrow end panels 5 (if desired, Fig. 5), doors 6, gable ends 8 and filler plates 9 above the doors. The panels are all formed of thin sheet metal, and those designated 1, 2, 3 and 4 include the inturned bottom flanges 10 (Fig. 1) that rest on sills 11 (preferably wood) and may be secured thereto by screws 12. The corner panels are bent from a single sheet of metal, the flange 10 having been notched in an obvious manner. Each of the panels 1—2—3—4 has its side edges bent inwardly to form flanges 13 grooved at 14, and adjacent panels 1—2—3 are joined throughout a portion of their height by thin metal posts or key plates 15, having ribs 16 received in the grooves 14. By perforating the flanges 13 and the posts and providing slotted bolts 18 and wedges 19, a very convenient means is afforded for clamping the parts tightly together to exclude air and rain.

Resting directly on the upper ends of the members of each pair of posts are gusset plates 21 having ribs 22 (Fig. 1) conforming to and in alinement with the ribs on the posts, and to these gusset plates are joined sheet metal rafters (each of which may include an upper flange 23, a web 24 and a lower flange 25) and sheet metal ties 26, preferably of channel cross-section. Sheet metal channel suspenders or intermediate members 28 are used to join the peaks of the rafters to an intermediate point of a corresponding tie. The various joints between the gussets and suspenders and the rafters and tie are preferably formed by spot welding; and, in order to provide a large surface of contact, the flanges 25, together with the flanges of the suspenders, are bent out into the plane of the web of the corresponding member as indicated respectively at 30 and 31 (Figs. 1 and 2). The members 23—24—25 and 26 constitute, respectively, the compression and tension chords of the roof truss. If desired, the peaks and ties of adjacent trusses may be connected by sheet metal sway braces 32 also welded in place (Fig. 2). The gussets preferably include outwardly projecting eave supporting extensions 33 (Fig. 1).

It will be observed that the posts of key plates 15 terminate some distance below the roof and that the panels 1—2—3 extend upwardly thereto and are each provided with a flange 34 that lies substantially in the plane of the upper faces of the rafters (Fig. 1). When the gussets are in position and the plates are joined thereto by wedge bolts 18—19, as heretofore explained, a tight weatherproof joint is therefore secured throughout the height of the side wall.

The end panels differ from the panels 2 merely in that they have their upper edges bent to form a horizontal flange 36 (Fig. 2),

grooved to conform to a ribbed horizontal bar 38, that extends across the building and is of the same cross-section as the posts, except that its edge 39 (which projects outwardly) is bent to form an inclined drip board. The sheet metal end gables are formed in two halves 40, each having a horizontal flange 41 conforming to the ribbed upper surface of the bar 38 and also having a flange 42 bent into the plane of the roof. Similar flanges 43 along the adjacent edges of the halves inclose a vertical stiffening bar 44 of the same cross-section as the posts. Wedge bolts 18—19 join the several parts as before. Projecting outwardly from the flanges 42 and preferably welded thereto (Fig. 2) are flat metal light-sealing plates 45, not shown in Fig. 4.

Referring now particularly to Figs. 4 and 8, it will be seen that the filler plate 9 has ribbed horizontal flanges 46 and 48 that conform respectively to the ribbed surfaces of the bar 38 and the lintel bar 49, the edges of the latter of which project beyond the flange 48. An upper sheet metal jamb plate 50 including edge flanges 51 and a stop portion 52 is detachably secured to the bar 49 by bolts 53. As the parts are clamped together by wedge bolts 18—19, the lintel bar and the joint plate may be said to be suspended from the bar 38. The depth of the plate 9 is such as to bring the upper edge of the door 6 below the eaves, from which it follows that the door may be readily inserted in lieu of one of the panels 2 or 3, they being of the same width.

The roof covering may be of any approved character. That shown (Figs. 1 and 2) comprises ridge boards 71, intermediate roofing plates 72, eave plates 74 (having their edges bent down over the gusset extensions 33), key plates 75′ and end roofing plates 76′. The various plates of the roof are arranged in overlapping relation to each other and secured to the flanges 23 of the rafters by thin resilient metal clips 77, driven into place at an angle to the rafters and having two contact points that engage, respectively, with the upper face of the seams 78 (whereby the plates are joined) and the lower surface of the corresponding rafter flange.

In erecting the building, the end panels 4, the corner panels 1, the bars 39 and the gable ends 40 are preferably secured together while lying substantially flat. They are then tipped into the position shown, and a pair of posts, together with the adjacent side panels, assembled. The trusses are then elevated above the side panels and afterward lowered to bring the gussets into proper alinement with the posts and the corresponding bolts 18—19 are placed. Since, for hospitals and other portable buildings of twenty feet in width and with posts spaced approximately four feet, the weight of a truss need not exceed one hundred pounds, it is apparent that this manner of assembling the trusses is of much importance, as two men, one at each end, can place them without difficulty and without hoisting mechanism. The ends of the building may of course be assembled otherwise than as stated. The process of erection is thus continuous—panels, posts, panels, truss, in the order named—as opposed to the ordinary procedure in which a self-bracing frame-work is first erected and sheeting or walls afterward applied. It will be observed that the trusses are connected to the posts, only indirectly by means of the panels on each side.

I claim:—

1. The process of erecting buildings which comprise side wall panels having flanges along their vertical edges, posts of less height than the flanges interposed between the latter, and roof trusses having ends conforming to the spaces between the upper ends of the flanges, which process consists in first assembling the wall panels and posts and afterward lowering the trusses into the spaces between the corresponding flanges.

2. The process of erecting buildings which comprise side wall panels having grooved flanges along their vertical edges, posts of less height than the flanges and having ribs conforming to the grooves of the latter, and roof trusses having ends conforming to the spaces between the upper ends of the flanges, which process consists in first placing a panel in position, next placing a post in such relation to the panel that one of its ribs is received in the groove in the flange of the latter, next placing a second panel in such relation to the post that another rib on the latter is received in the groove in the flange of the former, and afterward lowering the end of the corresponding truss into the space between the upper ends of the flanges until it rests upon the upper end of the post.

3. The process of erecting buildings which comprise sectional ends, including corner panels and side wall panels, said corner and side wall panels having flanges along their vertical edges, posts of less height than and interposed between the flanges, and a roof truss having ends conforming to the spaces between the upper ends of the panels, which process consists in first assembling a sectional end in a plane other than vertical, next tilting the end about its base until it stands substantially vertical, then placing a post in position against the flange of the corresponding corner panel, then placing a wall panel so that its flange engages the side of the post opposite the flange on the corner panel, and finally lowering the end of the truss into the space between the upper

ends of the flanges until it rests upon the upper ends of the posts.

4. The process of erecting buildings which comprise side wall panels having flanges along their vertical edges, thin posts of less height than the flanges and conforming to the latter, and roof trusses having ends conforming to the spaces between the upper ends of the flanges, which process consists in first placing a panel in position, next placing a post against the flange of the panel, afterward placing a second panel with its flange against the post, then lowering the end of the corresponding truss into the space between the upper ends of the flanges until it rests on the upper end of the post.

THOMAS H. KANE.