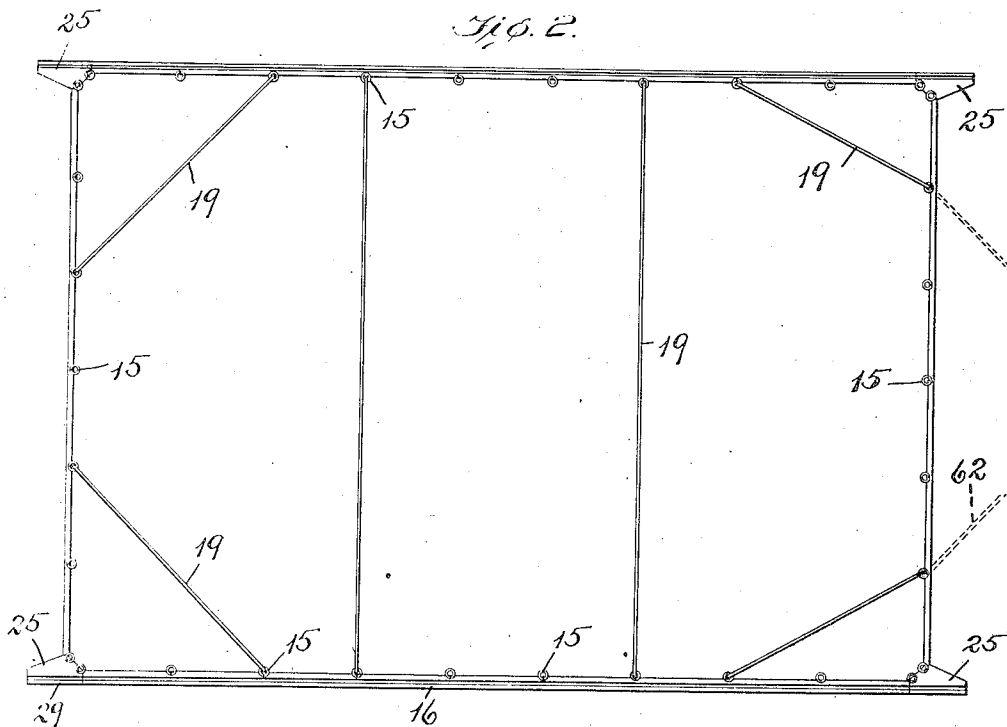
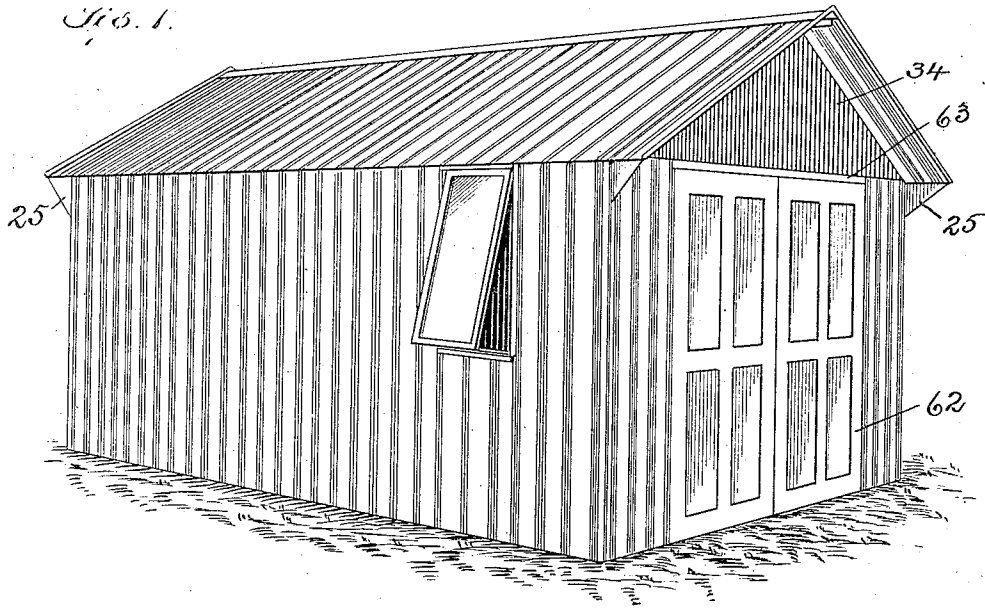


1,062,994.

C. D. PRUDEN.
SHEET METAL HOUSE.
APPLICATION FILED MAR. 2, 1911.

Patented May 27, 1913.

4 SHEETS—SHEET 1.



Inventor

Witnesses

Edwin K. Bradford
G. Ferd. Vogt.

Clarence D. Pruden

By

Mann & Co.

Attorneys.

C. D. PRUDEN.
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4 SHEETS—SHEET 2.

Fig. 5.

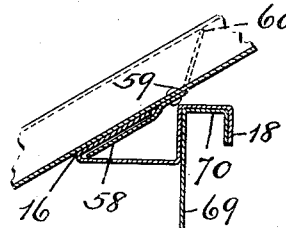
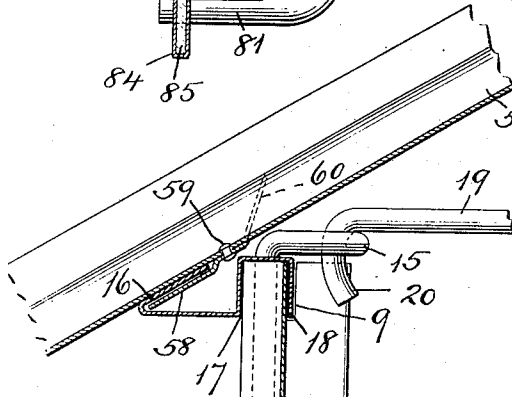
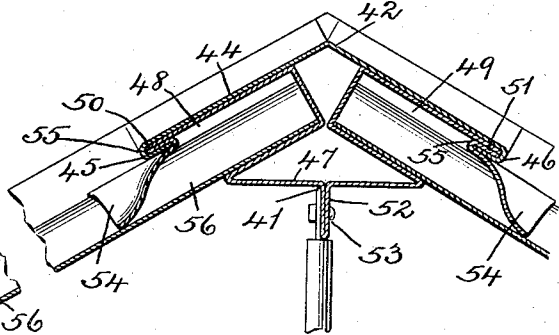
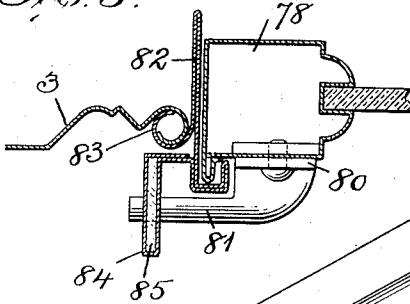


Fig. 3.

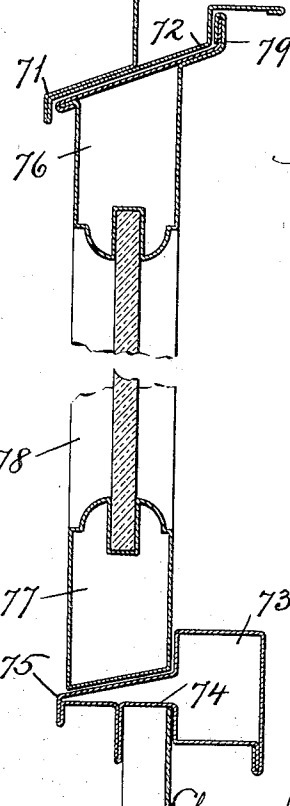
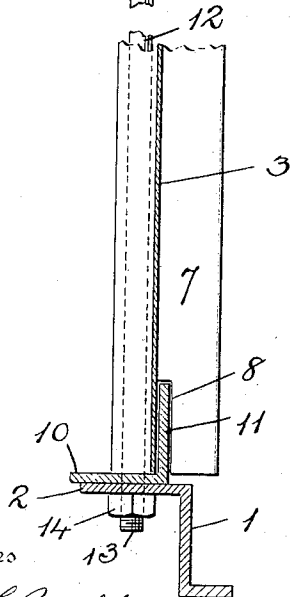


Fig. 4.

Witnesses

Edwin L. Bradford
J. Ford. Vogt.

Inventor

Clarence W. Pruden

Mann & Co.
Attorneys

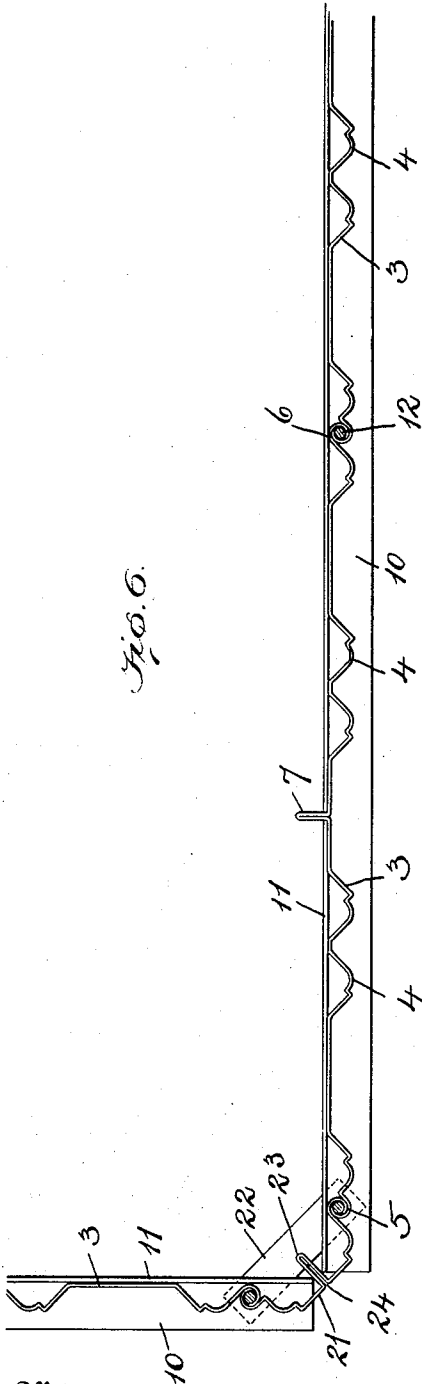
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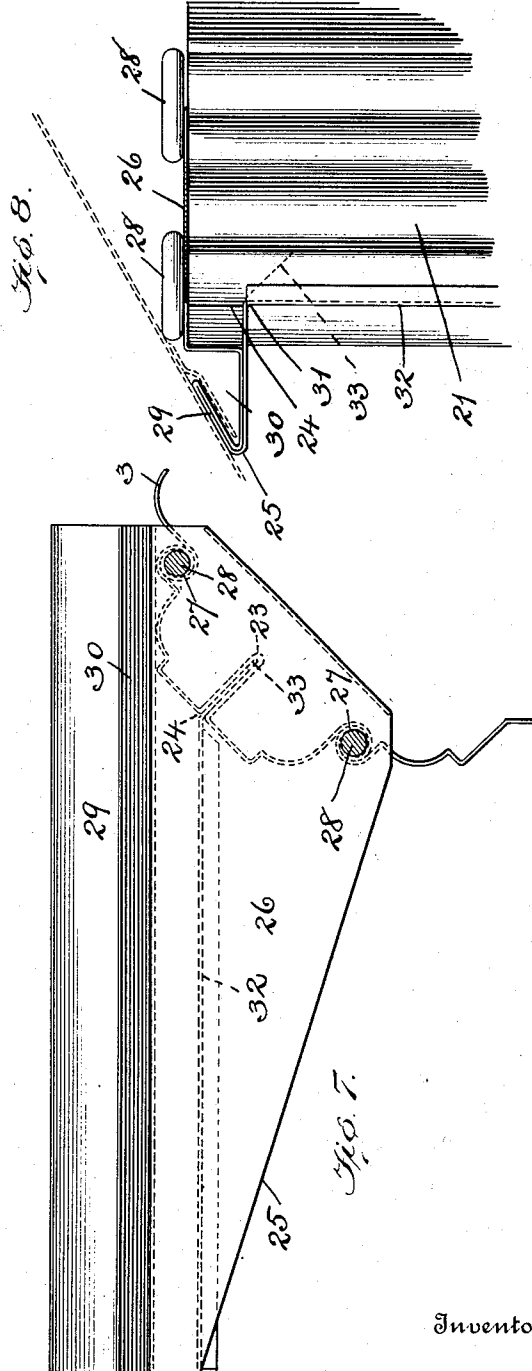
Patented May 27, 1913.

4 SHEETS—SHEET 3.



Witnesses

Edwin L. Bradford
G. Ford. Vogt



Inventor

Clarence W. Pruden

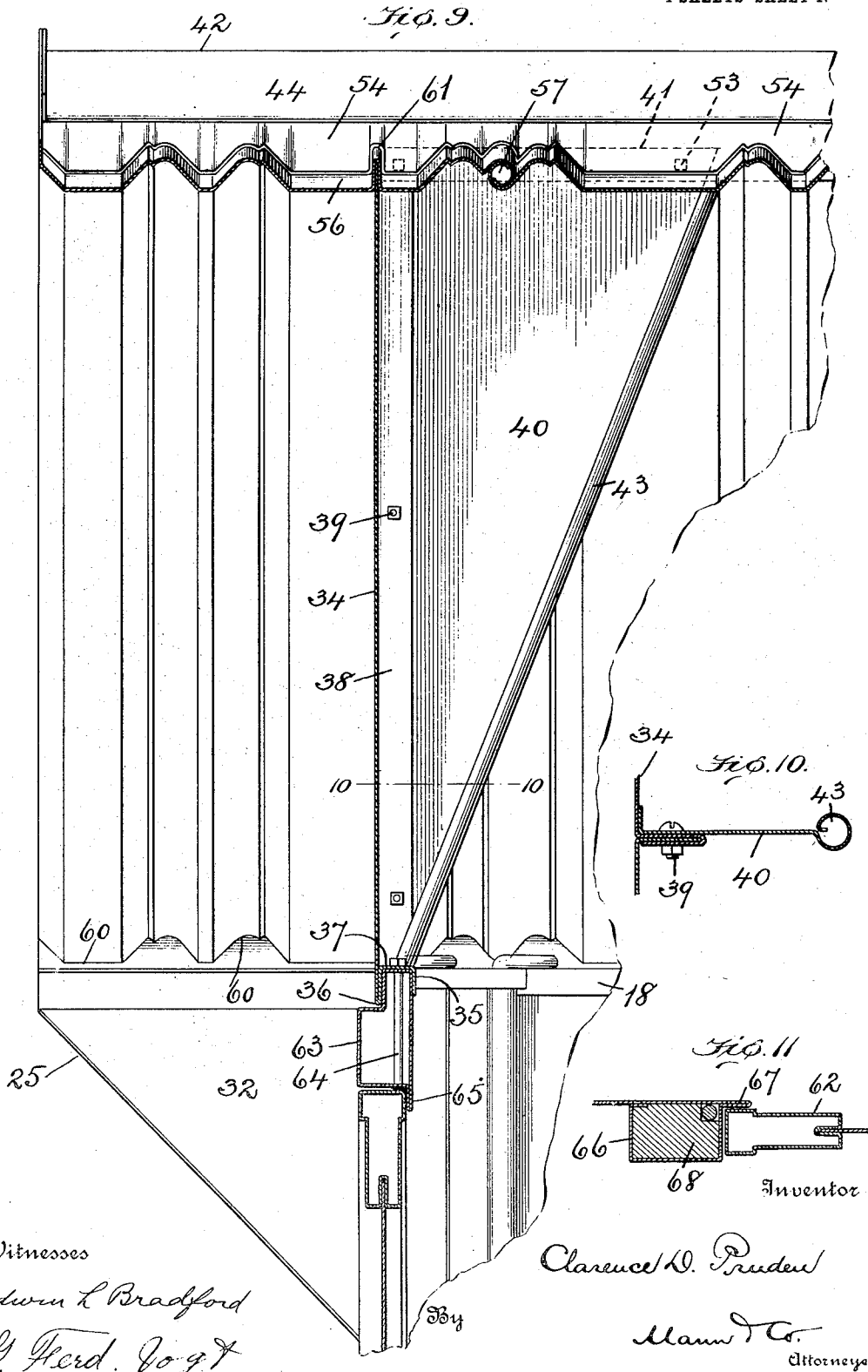
Mann & Co.
Attorneys.

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4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

CLARENCE D. PRUDEN, OF BALTIMORE, MARYLAND.

SHEET-METAL HOUSE.

1,062,994.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed March 2, 1911. Serial No. 611,767.

To all whom it may concern:

Be it known that I, CLARENCE D. PRUDEN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Sheet-Metal Houses, of which the following is a specification.

This invention relates to an improved construction of portable house and has reference to houses of this character constructed entirely of sheet metal.

One object of the invention is to provide an improved construction of sheet metal house which may be formed in sections, then readily set up and secured together and which shall be strong, durable and tight against the wind and weather.

The invention consists in the novel construction, combination and arrangements of the various sections employed in the make-up of the house hereinafter described and particularly set forth in the claims.

The invention is illustrated in the accompanying drawings wherein,

Figure 1, is a perspective view of a house constructed in accordance with the invention. Fig. 2, is a top plan view of the side and end walls and shows the tie rods connecting the same. Fig. 3, is a sectional elevation through one side wall, the roof and ridge all connected as in use. Fig. 4, is a vertical sectional view through the side wall and also through a window sash section set therein. Fig. 5, is a horizontal cross-section through a sash and the adjacent portion of the wall and shows the pivot on which the sash is hung. Fig. 6, is a sectional plan view through sectional end and side walls and shows the pilaster connecting the same and also shows the foundation plates on which the walls rest. Fig. 7, is a plan view of the corner bracket which is carried by and projects from the pilaster. Fig. 8, is an end elevation of the same. Fig. 9, is a vertical longitudinal sectional view through the roof adjacent and parallel to the ridge and shows the soft metal flashing projecting from the ridge—this section also shows the brace bracket plate extending from the inner side of the gable end. Fig. 10, is a horizontal section through the gable end and ridge supporting bracket,—the section being taken on the line 10—10 of Fig. 9, and Fig. 11, is a horizontal section through the door frame and door.

Referring particularly to Fig. 3 of the drawings it will be noted that the entire house structure is sustained on angle plates, 1, having horizontal flanges, 2. These plates may be seated on the ground or, in case a more permanent foundation is desired they may be embedded in a foundation of concrete, but in any event they are placed where it is desired to locate the house. The walls of the house are formed of sheet metal sections, 3, which latter may be plain or they may be provided with suitable corrugations, 4, or other pressed shapes that will add to their appearance or which will impart strength. The opposite vertical edges of each wall section, 3, are provided with tubular rolls, 5, and 6, respectively,—the roll, 5, at one vertical edge turning inwardly and the roll, 6, at the opposite vertical edge preferably turning in the opposite direction or outwardly as may be seen in Fig. 6. Between the opposite rolled edges each wall section, 3, is also preferably provided with a vertical intumed flange, 7, which is formed by producing a vertical crease or fold therein from the lower to the upper edge. These intumed flanges or folds, 7, are provided at their lower edges with vertical notches, 8, and at their upper edges with notches, 9, as best seen in Fig. 3, of the drawing which are for purposes presently to be explained.

In assembling, the wall sections are placed with the tubular roll, 5, at the edge of one adjacent to the tubular roll, 6, of the other and said rolls are telescopically-engaged by sliding one within the other and thus form a complete tubular joint between adjacent sections. Any desired number of wall sections may thus be telescopically engaged until the side or end wall is complete. The same procedure will be followed for the other side or end walls,—the doors or windows being provided for as will presently be explained.

After the four walls are separately formed by the required number of sections, an angle bar or plate, 10, is laid against the bottom or lower edge of the sectional wall and the up-turned flange, 11, of said plate is fitted into the vertical notches, 8, of the intumed flanges or folds, 7, while the outer surface of said flange, 11, extends along the inner side of the several wall sections as shown in Fig. 3. By this means the lower ends of

the wall sections are prevented from springing outwardly because of the engagement of the flange, 11, with the notches, 8, and inward bulging from external pressure is prevented because the flange, 11, engages the inner side of said wall sections. After the angle bar or plate, 10, has been properly positioned against the wall sections suitable vertical rods, 12, are passed through the several telescoping rolls and the lower threaded ends, 13, thereof are passed through suitable perforations in the angle bar which latter is then seated on the horizontal flange, 2, of the foundation angle plate, 1. The foundation flange, 2, is also provided with perforations which receive the lower ends of the rods, 12, and nuts, 14, serve to rigidly secure the walls and angle plate to the foundation plate. In this manner a very rigid and satisfactory joint is made between the wall sections and foundation.

The upper ends of the rods, 12, are provided with suitable eyes, 15, which extend laterally or horizontally and are turned to project over and toward the inner side of the wall sections, as shown in Figs. 2 and 3. Prior to the insertion of the rods, 12, in the telescoping rolls, the upper edges of wall sections are fitted into a channel plate which extends all along the sections and which has a channel, 17, that fits over and receives said wall sections which also has perforations therein which register with the telescoping rolls, so that the rods, 12, may be first passed through said perforations before entering the telescoping rolls of the wall sections.

By reference to Fig. 3 it will be noted that the channel plate has an up-turned inclined flange, 16, at its outer side and a down-turned flange, 18, at its inner side which latter extends down at the inner side of the wall sections and enters the notches, 9, at the upper edge of each inturned vertical flange, 7, on the wall sections. By means of the flange, 18, and its engagement with the notches, 9, the upper ends of the wall sections are prevented from inward or outward movement.

By reference to Figs. 2 and 3 it will be noted that a number of horizontal tie rods, 19, extend crosswise between the upper ends of the side and end walls,—said rods having hooks, 20, at their ends which engage the eyes, 15, on the upper ends of the vertical rods, 12, and by means of these rods the side and end walls are properly and rigidly tied together. In order to simplify the joining of the side and end walls at the corners I have provided an improved construction of corner plate or pilaster, 21, which is best illustrated in Figs. 6, 7 and 8 of the drawings, to which attention is directed. If desired a suitable flat metal

plate, 22, may be laid diagonally across and between the adjacent ends of the angle plates, 10, and said plate has perforations therein that register with the end perforations in the said angle plates and also with the end rolls in the side and end walls which are to be united by the corner plate or pilaster. The pilaster, like the sections of the walls, has its opposite vertical edges curled to form inturned and out-turned rolls which will engage the respective end rolls on the side and end wall sections. About midway between the opposite vertical edges the pilaster is provided with an inwardly-projecting fold, 23, which extends vertically and which forms a vertical groove, 24, at the outer side for a purpose which will presently be explained.

In order to permit the roof, which will hereinafter be described, to project beyond the end walls, it is desirable that suitable brackets, 25, be provided at the corners of the house, as indicated in Figs. 1, 2, 7, 8 and 9 of the drawings. By reference to these figures it will be seen that the corner bracket, 25, has a flat upper plate portion, 26, which rests on the upper end of the pilaster and which has perforations, 27, that register with the upper ends of the curled rolls at the opposite vertical edges of the pilaster so that rods, 28, may be passed down through said perforations and rolls to secure the pilaster; the corner bracket and the side and end walls together. The corner bracket has a longitudinally-extending inclined flange 29, along its outer edge which is depressed below the flat plate portion, 26, and which forms a channel, 30, which registers with the channel, 17, in the channel plate that fits over the top edge of the side and end wall. In order to brace the corner bracket I have folded the metal to produce the inclined flange, 29, and have carried the folded metal beneath the channel, 30, and turned it down at 31, to form a vertical inclined brace, 32. As may be seen in Fig. 7 this brace extends along the under side of the bracket toward the vertical groove, 24, in the pilaster and has a vertical tongue, 33, which projects into said pilaster groove and thereby serves as a brace for the outer end of the corner bracket.

From the foregoing explanation it will be understood that in assembling, the side and end walls are first separately formed by telescopically joining the proper number of wall sections; the walls are then set on ends and bolted to the angle foundation plates; the pilasters are then telescopically engaged with the walls at the corners and the tie rods, 19, are engaged with the eyes, 15, on the upper ends of the rods, 12, as shown in Fig. 2, and the walls are ready to receive the roof. In the present instance the roof is of the gable class and conse-

quently the end walls must be provided with gable-end plates, 34, to close the ends above the walls.

By reference to Fig. 9 it will be seen that the gable ends comprise vertical plates having a channel, 35, along their lower ends. This channel is formed by folding the metal as at, 36, along the bottom edge of the plate and turning it upwardly and then over the wall sections as at, 37, and finally down at the inner side of the latter. By this means the channel along the bottom of the gable-end will take over the upper ends of the wall sections or end-walls and will thus be rigidly secured. The abutting edges of the gable-end plates are provided with intumed flanges, 38, which extend vertically from the top to the bottom,—these flanges being secured together by bolts, 39, and the lower ends resting upon the channel, 35. A ridge bracket, 40, has one vertical edge seated against the flanges, 38, of the gable-end plates and is secured thereto by the same bolts, 39, that hold said flanges together. This ridge bracket has position at the inner side of the gable-ends so that its upper horizontal edge, 41, may form a support for the horizontal ridge bar, 42, that extends longitudinally of the house from end to end, as will presently be more fully explained. In order to stiffen the ridge bracket I have provided a roll or curl, 43, at its longitudinally-extending inclined edge as clearly seen in Figs. 9 and 10.

The ridge, best shown in Figs. 3 and 9 has an upper outer plate, 44, of substantially a saddle shape having longitudinally up-turned hooks, 45, and, 46, along its upper side edges,—the hooks turning under and upwardly. A channel plate, 47, coacts with the saddle plate and forms two channels, 48, and, 49, respectively beneath the saddle plate. This channel plate has one edge, 50, engaged with the hook, 45, at one side of the saddle plate and its other edge, 51, engaged with the hook, 46, at the opposite side of the saddle plate. A horizontal flange, 52, is formed in the channel plate by folding the metal thereof midway between its ends which serves, not only to stiffen the plate longitudinally but also for the attachment of the upper horizontal edge, 41, of the ridge bracket which latter is laid against the side of the flange, 52, and is secured thereto by means of suitable fastening devices, 53. It will thus be seen that the ridge which comprises the plates, 44, and, 47, is sustained from the end walls by the ridge brackets and gable ends and that channels, 48, and, 49, are formed in opposite sides of the ridge. A strip or sheet of soft pliable material such as lead, 54, has an upper longitudinal edge, 55, secured in the channel, 48, or channel, 49, as the case may be, and is preferably held therein by

engaging said edges, 55, with the hooks, 45, or 46. These sheets or strips of pliable material are utilized as flashing to effect a substantially tight joint with the roofing plates as will presently be described.

The roofing plates, 56, are formed substantially like the plates of the side and end wall sections in that their edges are joined by telescoping tubular members, 57, and the plates are preferably corrugated. The plates have their upper edges inserted in the channels, 48, and, 49, of the ridge and the flashing of pliable material, 54, is pressed close against the outer surface to make a substantially tight joint therewith, or at least sufficiently tight to prevent rain or snow from beating up and around the upper ends of the roofing plates.

In order to hold the roofing plates in position and prevent their working downwardly and away from the ridge channel, I have provided the under surface of said plates with a longitudinal strip of metal, 58, as shown in Fig. 3 or 4. These metal strips are preferably secured to the roofing plates by rivets, 59, so as to leave the lower edge free in order that the latter may project beneath the up-turned inclined flange, 16, on the channel plate that rests upon the wall sections. It will thus be seen that when the hook flanges or strips, 16, and, 58, are engaged the roofing plates cannot move downwardly or away from the ridge. By referring to Figs. 3, 4 and 9 it will be noted that the strip, 58, is so riveted to the roofing plate that an upper longitudinal edge, 60, is provided, and that said edge is cut and bent so as to snugly fit into the corrugations and intervening portions of the roofing plates thus making a substantially tight joint between the channel plate and roofing plates. At the point where the gable end plates and roofing plates come together, I have provided the latter with a groove, 61, along the under side so that the upper end of the gable-end plates can project into said groove and make a substantially tight joint at that point as can be seen by referring to Fig. 9.

The doors and door frames may be constructed in any of the well-known ways, but in the present instance the house shown is provided with large doors, 62, at one end thereof which swing into a frame. The frame comprises a horizontal hollow member, 63, above the upper edges of the doors whose upper longitudinal portion receives the channel, 35, at the lower edge of the gable-end plates, see Fig. 9, and a suitable fastening device, such as a bolt 64, secures the hollow member and channel together. The lower inner edge of the hollow member, 63, is provided with a stop flange, 65, which is produced by folding and off-setting the metal at that point. The

vertical edges of the wall sections at opposite sides of the door are formed into channels, 66, and are also provided with stop flanges, 67, for the doors when the latter are shut. I prefer to provide a block or filling, 68, in the channels, 66, particularly at the point where it may be desired to secure the hinges.

In the case of windows I provide the wall section above the window with a plate member, 69, (see particularly Fig. 4 of the drawing) having a hook portion, 70, at its upper edge to enter the channel, 17, at the upper edge of the wall sections. This plate member, 69, also has an outwardly and downwardly-inclined flange, 71, and an inwardly and upwardly extending shoulder, 72, that forms a stop at the upper edge of the window sash. The sill for the window sash comprises a hollow member, 73, having a bottom channel, 74, that straddles the window opening in the side wall and which also has an outwardly-extending portion, 75, which projects beneath the sash. The sash is formed of hollow, top, bottom and side rail portions, 76, 77, and 78, respectively and the top rail has an inclined surface which conforms to the inclined portion of the plate member, 69. A flange, 79, is provided at the inner upper side of the top rail which forms a stop for the sash. The sash is pivotally sustained adjacent its upper end, so that the lower end may swing outwardly. By reference to Fig. 5, which shows a detail of this pivot, it will be seen that the vertical side rail, 78, of the sash carries a bracket, 80, which has a horizontally-projecting pin, 81. At the side of the sash the wall section carries a vertical frame member, 82, which has a curled or rolled edge, 83, that engages the roll on the wall section. The frame member, 82, is folded and bent so as to form a vertical flange, 84, at the inner side, which flange preferably has a plate or filling, 85, therein to stiffen it and to afford a serviceable bearing for the pin, 81, of the sash-bracket.

From the foregoing explanation it will be seen that the house is formed of sections which are bolted together and may be set up and taken down when desired. It will also be noted that it is well braced along the top and bottom of the walls and that the

joints between the ridge and roof and between the roof and walls is practically tight against the weather.

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

1. In a sheet metal house the combination with a plurality of connected walls of channel plates carried on the upper ends of opposite walls each channel plate having an up-turned flange; a roof and a strip secured to the under side of the roof and projecting downwardly into locking engagement with the channel plate flanges.

2. In a sheet metal house the combination with a plurality of wall sections joined at their longitudinal edges, of a pilaster for connecting wall-sections that extend at an angle with respect to each other; a corner bracket sustained from the upper end of the pilaster and projecting beyond the outer side of the walls; a roof and means for connecting the roof with the corner brackets.

3. In a sheet metal house the combination with a plurality of wall sections joined at their longitudinal edges, of a pilaster for connecting wall-sections that extend at an angle with respect to each other; a corner bracket sustained from the upper end of the pilaster and projecting beyond the outer side of the walls,—said corner brackets having up-turned flanges; a roof and means on the roof for engaging the flanges of the corner brackets.

4. In a sheet metal house the combination with a plurality of wall sections joined at their longitudinal edges, of a pilaster connecting walls that extend at an angle with respect to each other,—said pilaster having a vertical groove at its upper end; a corner bracket having a flange that enters the pilaster-groove and also having an upper plate portion that projects over the end of the pilaster; means for securing said plate portion to the pilaster; a roof and means for securing the roof to the corner bracket.

In testimony whereof I affix my signature in presence of two witnesses.

CLARENCE D. PRUDEN.

Witnesses:

CHAS. B. MANN,
G. FERD. VOGT.