

May 5, 1925.

1,536,977

W. SKIPWORTH
SHEET METAL BUILDING
Filed Dec. 23, 1921

4 Sheets-Sheet 1

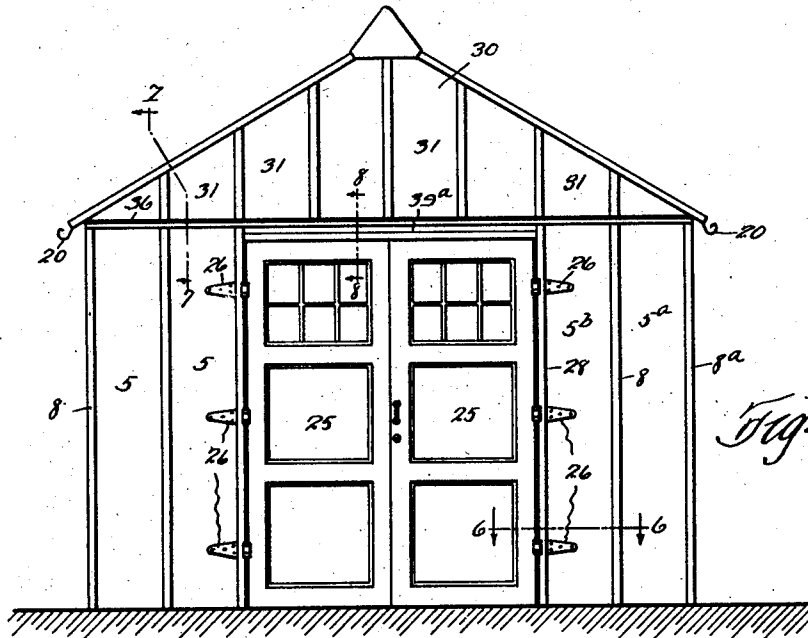
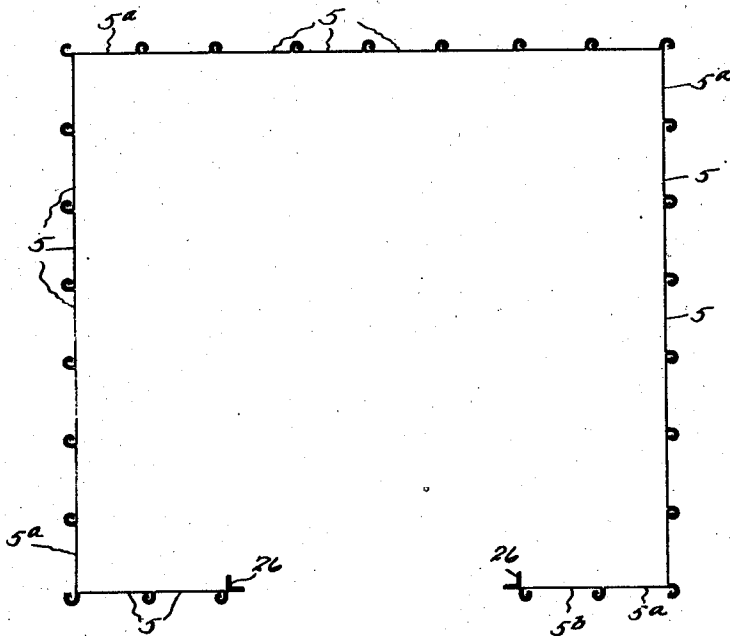


Fig. 5

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May 5, 1925.

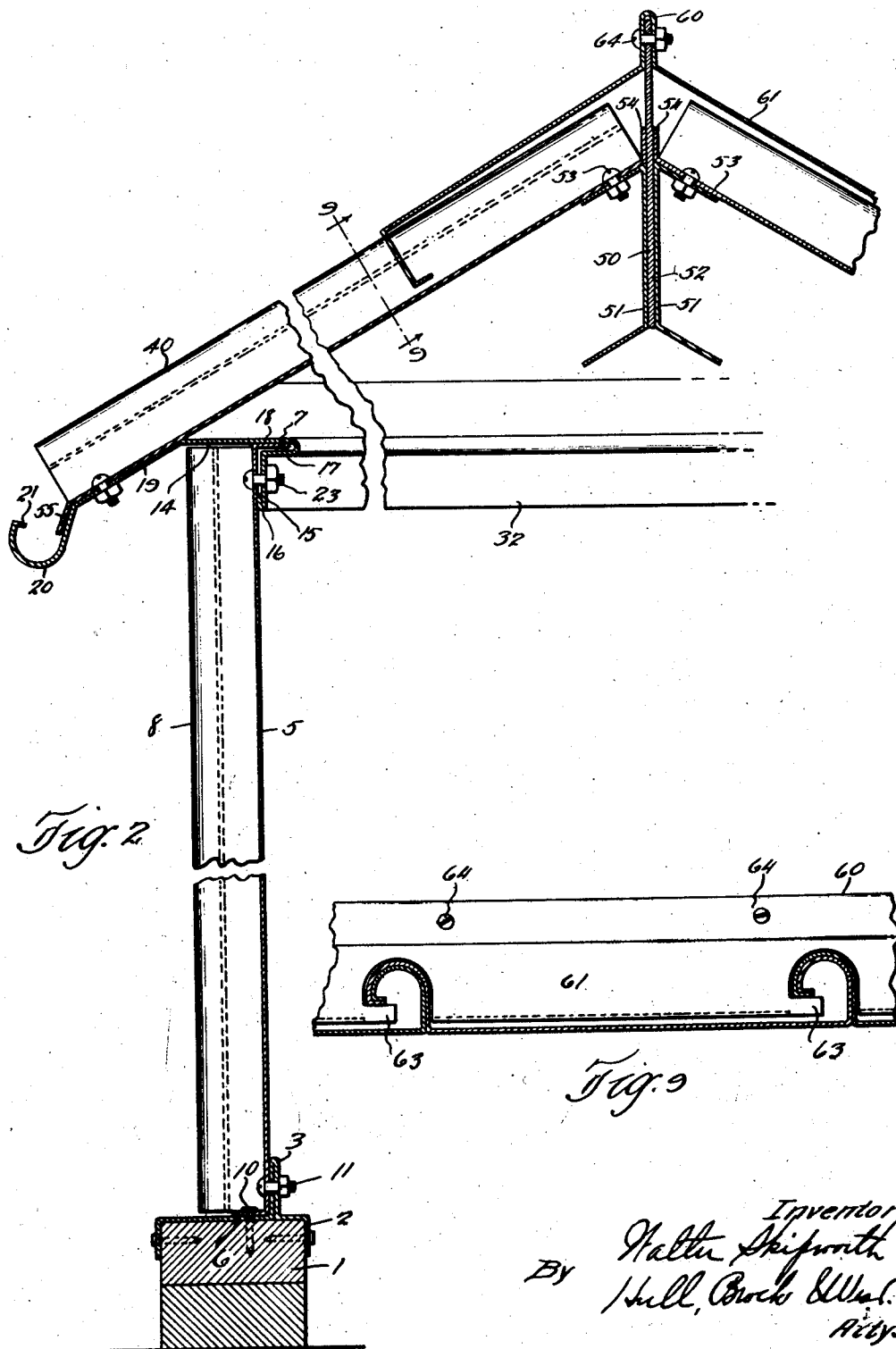
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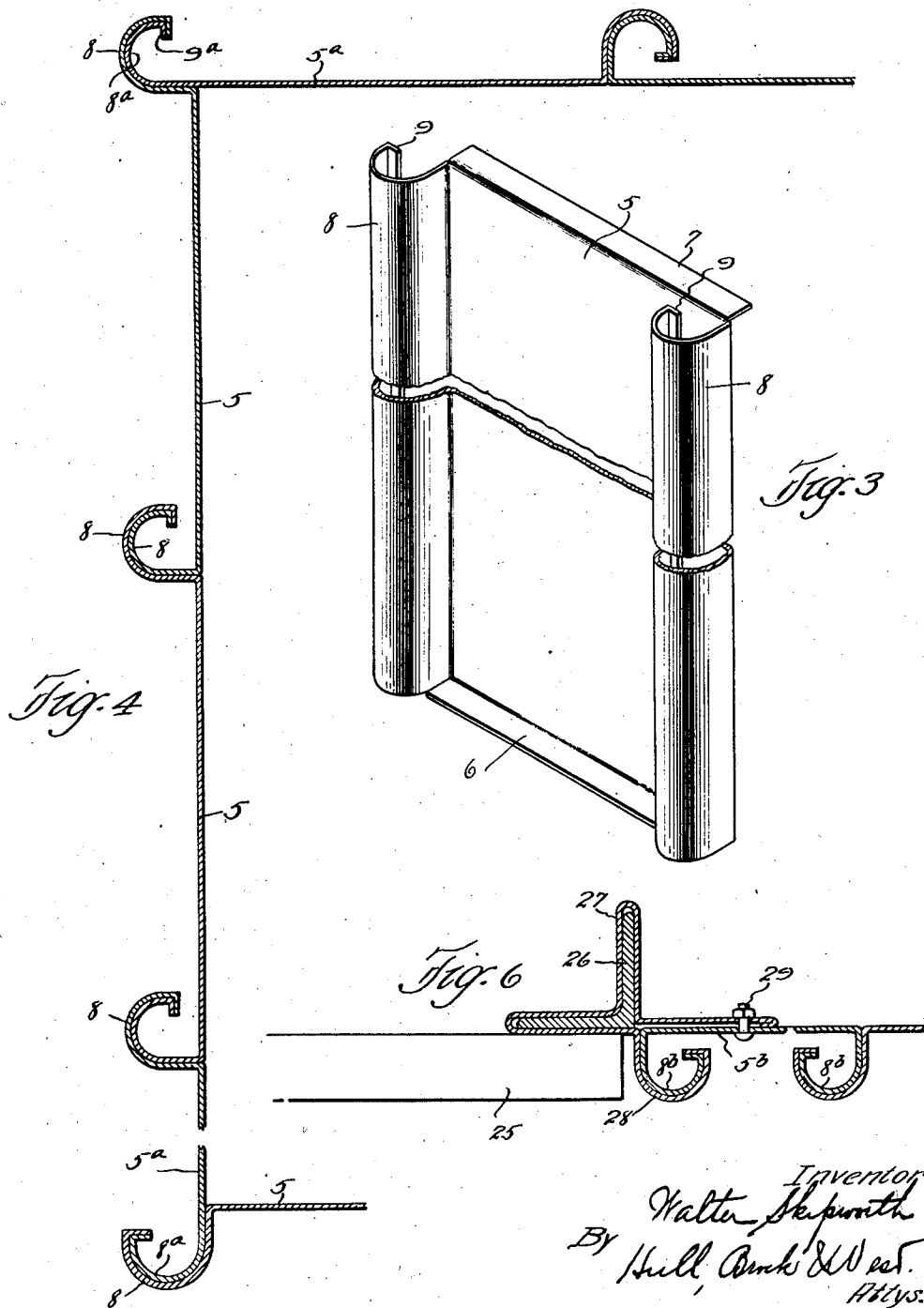
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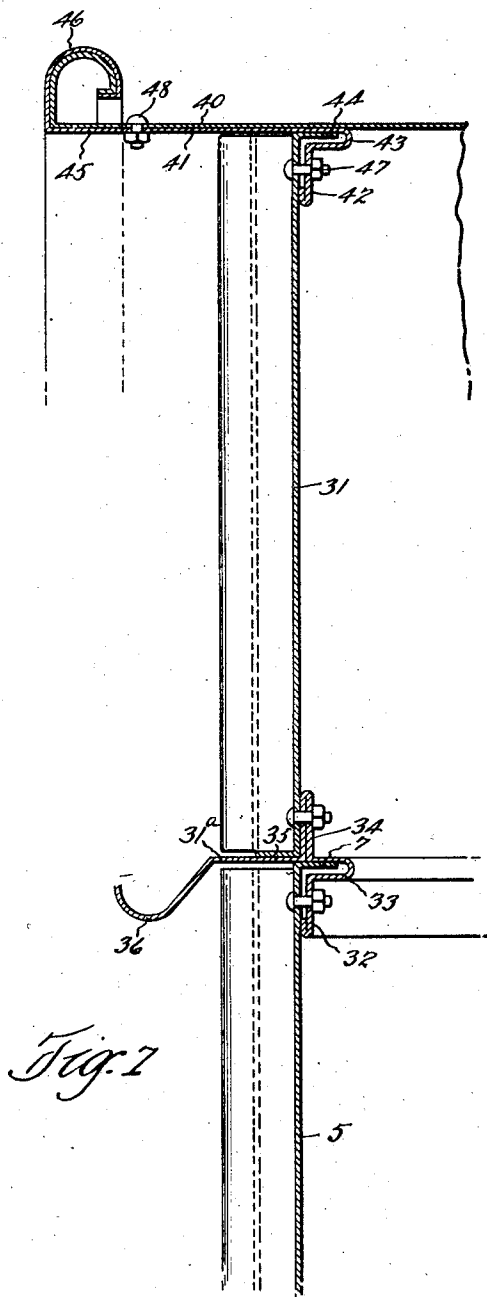
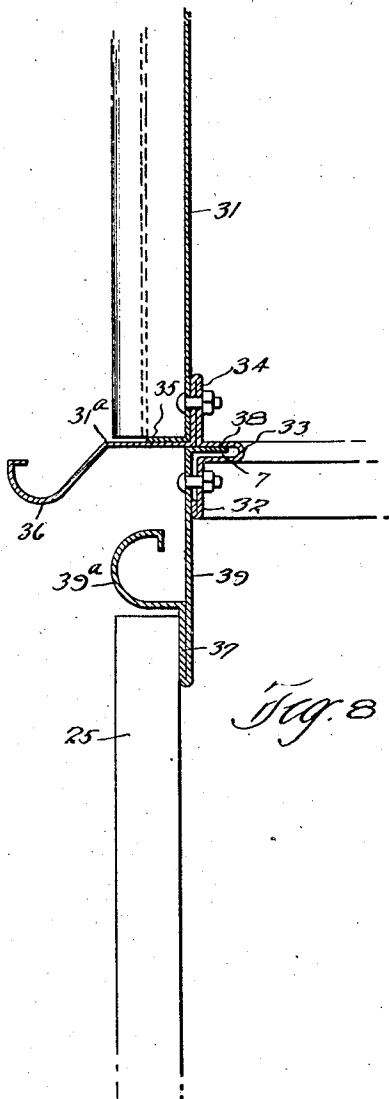
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SHEET METAL BUILDING

Filed Dec. 23, 1921

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

WALTER SKIPWORTH, OF CLEVELAND, OHIO, ASSIGNOR. BY MESNE ASSIGNMENTS, TO
MARION MACHINE, FOUNDRY & SUPPLY COMPANY, OF MARION, INDIANA, A COR-
PORATION OF INDIANA.

SHEET-METAL BUILDING.

Application filed December 23, 1921. Serial No. 524,518.

To all whom it may concern:

Be it known that I, WALTER SKIPWORTH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Sheet-Metal Buildings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to building construction and has particular reference to sheet metal building construction similar to that described in my Patent No. 1,170,691, dated February 8, 1916.

Some of the objects of the present invention are to provide a portable sheet metal building which may be easily and quickly erected by inexperienced persons and which shall not require a frame or superstructure to support the individual pieces; to provide a building of this character which shall have the sides, ends and top thereof formed from sheet metal panels each of which interlocks with an adjacent panel to form a weather-proof joint and the whole forming a rigid structure capable of withstanding exceptionally hard service; to provide a sheet metal building whose interior walls shall present a smooth unbroken surface devoid of ridges or other projections and hence form a surface which may be easily covered with composition board or other finishing material if desired, to provide a sheet metal building which shall be simple in construction and consist of few parts, each of which is inexpensive to manufacture, while further objects and advantages will appear as the description proceeds.

In the accompanying drawings wherein I have shown an illustrative form of my invention, Fig. 1 is a front elevation of a building constructed in accordance with my invention; Fig. 2 is an enlarged transverse sectional view through a portion of the building; Fig. 3 is a perspective view of one of the interlocking panels; Fig. 4 is a transverse section through a portion of the side and end walls of the building; Fig. 5 is a diagrammatic view showing the wall panels

assembled; Figs. 6, 7 and 8 are enlarged detail sectional views taken respectively on the lines 6—6, 7—7, and 8—8 of Fig. 1; and Fig. 9 is a detail sectional view taken on the line 9—9 of Fig. 2.

In constructing and erecting a metal building in accordance with my invention, a sill 1 of wood, concrete or other suitable material, (Fig. 2) is laid out to the desired shape and dimensions of the building. A sill cover 2 is then secured to the sill by nails, bolts, screws or in any other suitable manner depending upon the material from which the sill is formed. This sill cover is formed from sheet metal and as shown in Fig. 2, embraces the sides and top of the sill, the portion covering the top of the sill being folded upon itself to form a vertical fin 3 which extends longitudinally of the sill.

The sides, and ends of the building, with the exception of the doors in one end, are formed from a plurality of interlocking sheet metal panels 5. Each of these panels is rectangular in shape and the bottom and top edges of each panel are bent over in opposite directions at right angles thereto, to form bottom and top flanges 6 and 7, respectively as clearly shown in Fig. 3. The sides of each panel are bent over at right angles and then rounded to form tubular portions 8 which extend longitudinally of the panel and the inner edge of each of these tubular portions is deflected inwardly as indicated at 9 so as to be substantially parallel with the surface of said panel. In erecting, a panel 5 is placed on the sill with its flange 6 in contact therewith and the surface of the panel in contact with the vertical fin 3. The flange 6 is secured to the sill, as by means of nails 10 and the panel is also secured to the vertical fin in any suitable manner, as by means of stove bolts and nuts indicated at 11.

An eave strip indicated at 14 (Fig. 2) rests on the upper flange 7 and is bolted to the panels. This eave strip is formed from sheet metal and is provided with a vertical portion 15 which has the lower edge bent

upon itself as indicated at 16 and the upper portion bent inwardly at right angles as indicated at 17, then outwardly as indicated at 18 to form a pocket for the upper flange

7. The outwardly directed portion 18 extends slightly beyond the tubular side edges of the panels and is then directed downwardly as indicated at 19 so as to assume an angle substantially the same as the pitch of the roof. The extreme outer portion of this eave strip is provided with a tubular roll indicated at 20 so as to form a gutter or trough, and the edge of this tubular portion is deflected inwardly as indicated at 21.

As before stated a panel 5 is secured at its bottom to the sill and vertical fin 3, and at its top the flange 7 is positioned in the aforementioned pocket and suitable bolts and nuts 23 clamp the panel and vertical portion 15 of the eave strip together. An adjacent panel is interlocked with the erected panel by placing the panel at an angle to the erected panel so that one of its tubular edges is engaged with the tubular edge of the erected panel, then rotating said panel into position against the sill cover and eave strip as shown in Fig. 4. This panel is then fastened at its upper and lower edges as previously described. Succeeding panels are erected along the side until the corner is reached. The corner interlock is formed with a panel 5^a similar to panel 5 except that the tubular portion 8^a along one side edge is not bent at right angles to the panel, but instead, such tubular portion is formed by rolling the edge to a substantially semi-circular cross section and then directing the edge portion 9^a inwardly so as to be at substantially right angles to the plane of the panel. This panel 5^a is placed in position similar to the aforementioned panels, and the remaining rear panels are also set up in successive order. A panel 5^a is used at each of the other three covers in a similar manner as shown in Fig. 5.

I have shown one end of the building fitted with double doors indicated at 25, 25, one of which is hinged to a panel 5 and the other to a panel 5^b (Figs. 1, 5 and 6) by suitable hinges 26. The panel 5^b is similar to panel 5 except that the tubular rolls 8^b along each side edge are bent toward each other as shown in Fig. 6. The edge of each panel to which the doors are hinged, are strengthened by a vertically disposed angle member 26. As shown in Fig. 6 each angle member 26 is enclosed in a sheet metal casing 27 which has one edge thereof provided with a tubular roll 28 adapted to engage and interlock with the tubular roll on the edge of the wall panel and the other edge of said casing is bent upon itself and fastened to the aforesaid panels in any suitable manner as by bolts and nuts 29.

Referring now to Fig. 1 it will be seen that the front and rear end walls are fitted with gables 30, each formed from a plurality of panels 31 interlocked in a manner identical with the wall panels. Intermediate the gables 30 and the end walls there is interposed a gable belt 31^a (Fig. 7) which is formed from sheet metal. This gable belt is formed with a downwardly directed portion 32, an inwardly and horizontally disposed flange receiving pocket 33, an upwardly directed portion 34 and an outward and horizontally disposed portion 35 which terminates in a gutter or trough 36. The downwardly directed portion 32 is bolted to the wall panels and the upwardly directed portion 34 is bolted to the gables, the flange 7 formed on the wall panels being disposed in the pocket 34. In this manner a weatherproof joint is formed between the gables and wall panels.

In order to form a stop for the doors along their upper edges and also a weatherproof joint therealong, I position a sheet metal door cap 37 thereon. This door cap has a flange 38 adapted to enter the gable belt pocket 33 and support said cap in position. As shown in Fig. 8 this cap is formed with a downwardly directed portion 39 which is bent upon itself and provided with a tubular roll portion 39^a.

The roof is next put on the building and consists of a plurality of interlocked panels 40 similar to the wall panels previously described. A sheet metal gable extension 41 (Fig. 7) is first placed along each inclined edge of each gable. This gable extension is formed with a downwardly directed portion 42, which is bent at right angles at the upper edge to form a pocket 43 adapted to receive the upper flange 44 of the gable panels and then said extension is projected outwardly beyond the gable as indicated at 45. The outer edge of this projection is formed with a tubular roll 46. The gable extension is fastened along the inclined edges of the gables by suitable bolts and nuts 47. After these members are fastened in position, a roof panel 40 is placed along each inclined edge of the gables and each panel is interlocked with its respective tubular roll portion 46 of its gable extension. These end panels are each fastened to their respective gable extensions by suitable bolts and nuts 48. When these end panels are in position and fastened, a ridge bar 50 (Fig. 2) is then secured in position. This ridge bar is formed from sheet metal and consists of two channel members 51, 51 placed back to back and having a vertically disposed plate 52 interposed therebetween and extending thereabove as shown in Fig. 2. The upper channel sides are secured to the roof panels by bolts and nuts 53 and the flanges 54 of the roof panels are deflected upwardly to lie in

contact with the vertical plate 52. The flange 55 at the opposite end of the roof panel is bent downwardly to overlap the wall of the eave strip trough 20.

5 After the ridge bar is secured in position, the roof panels are laid on and interlocked in successive order from each end, and fastened at their upper and lower edges to the ridge bar and eave strip respectively, until
10 the last or middle panel is ready to be placed in position on each side of the roof. These last panels are placed in position and interlocked with the panel on each side thereof by entering the edge of the interlocking
15 panels at the eaves and sliding them upwardly into position where they are bolted in a manner similar to the preceding panels.

The ridge bar cap is next placed in position and as shown in Fig. 2, this cap is
20 formed from sheet metal and is provided with a vertically disposed slot 60 adapted to receive the plate 52 and said cap is also provided with inclined sides 61, 61 which overlap and contact with the roof panels. The
25 inclined sides of the cap are notched as shown in Fig. 9, to permit the tubular interlocks of the roof to project therethrough, and at each notch in said cap, a lip 63 is provided which is bent under its respective
30 tubular roll, thus locking the cap to the roof panels. Suitable bolts 64 serve to fasten the roof cap and vertical plate 52 together.

From the foregoing description, it will be apparent that I have provided a sheet
35 metal building which is composed of a plurality of sheet metal elements, all of which interlock to form weatherproof joints and which require a minimum number of independent fastening devices. A building constructed in accordance with my invention is
40 strong, durable and easily erected or taken down.

Having thus described my invention, what I claim is:

45 1. In a sheet metal building of the character set forth, the combination with a sill, of a sheet metal sill cover fastened thereto, said cover being provided with a vertically
50 disposed sheet metal fin projecting upwardly therefrom, said fin being formed by bending the metal of said cover upon itself and wall panels engaging said fin and secured thereto.

55 2. In a sheet metal building of the character set forth, the combination with a sill, of a sheet metal sill cover engaging the sides and top surface of said sill, the metal covering the top surface of said sill being bent upon itself to form an upwardly projecting
60 fin longitudinally of said sill, and wall panels engaging said fin and secured thereto.

65 3. In a sheet metal building of the character set forth, the combination with a side wall, of a roof arranged at an angle to said side wall, and projecting therebeyond, and

a sheet metal eave strip fastened to said side wall and to said roof and terminating beyond the edge of said roof in a gutter, the edge of said roof being deflected over and into said gutter.

70 4. In a sheet metal building of the character set forth, the combination with an end wall, of a gable arranged thereabove, and a sheet metal gable belt, having a portion secured to said wall and a portion secured to
75 said gable and a third portion projecting beyond said wall and gable, and terminating in a gutter.

5. In a sheet metal building of the character set forth, the combination with an end
80 wall, of a gable arranged thereabove, a flange formed on the upper edge of said wall and projecting upwardly therefrom, and a sheet metal gable belt fastened to the inner surface of said wall and embracing said
85 flange and projecting thereabove into contact with the inner surface of said gable, said gable belt projecting between said gable and wall and terminating therebeyond in a gutter.

90 6. In a sheet metal building of the character set forth, the combination with a gable, of a roof arranged thereabove, said roof projecting beyond said gable, and a
95 sheet metal gable extension having one end thereof fastened to said gable and the other end fastened to said roof.

7. In a sheet metal building of the character set forth, the combination with a
100 gable, of a roof arranged thereabove, said roof projecting beyond said gable, and a sheet metal gable extension fastened to the inner surface of said gable and projecting outwardly between said gable and roof and
105 having the outer edge thereof engaged with the edge of said roof.

8. In a sheet metal building of the character set forth, the combination with a center ridge bar arranged longitudinally of the
110 building, of a plurality of interlocked roof panels fastened to said ridge bar, the interlocking portions of said panels being disposed on the exterior surface of said roof thereby to provide a smooth interior sur-
115 face, and a ridge bar cap arranged along the longitudinal center of said ridge bar and overlapping said roof panels, said cap being interlocked with the interlocking portions of said roof panels thereby to secure
120 said cap without the use of bolts.

9. In a sheet metal building of the character set forth, the combination with a center ridge bar formed from sheet metal channels arranged back to back and having
125 an upwardly directed plate interposed therebetween, said plate projecting beyond said channels, a plurality of interlocked roof panels fastened to said ridge bar, said panels having the interlocking portions there-
130 of disposed on the exterior surface of the

roof thereby to provide a smooth interior surface, and a sheet metal ridge bar cap engaged with said projecting plate and overlapping said roof panels.

- 5 10. A panel for sheet metal buildings having a side edge thereof directed upwardly at right angles to said panel and said upwardly directed portion being shaped

to a substantially semi-circular cross section with its edge portion directed toward and at right angles to said upwardly directed portion and parallel with said panel. 10

In testimony whereof, I hereunto affix my signature.

WALTER SKIPWORTH.