Sept. 18, 1923. 1,468,100

J. A. BALDWIN

PORTABLE METALLIC BUILDING

Filed July 1, 1922 3 Sheets-Sheet 1

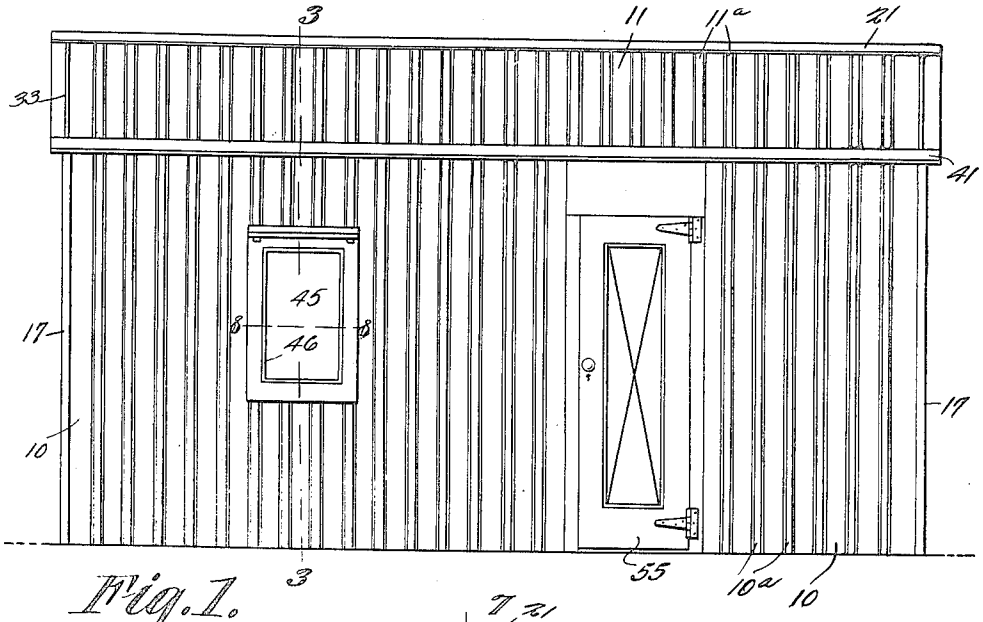

Fig. 1.

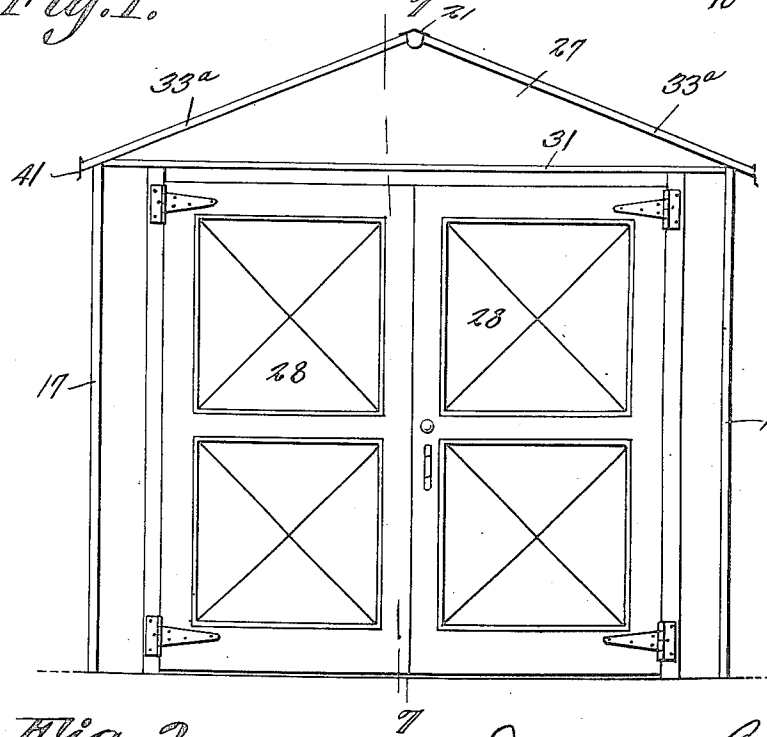

Fig. 2.

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Fig. 3.

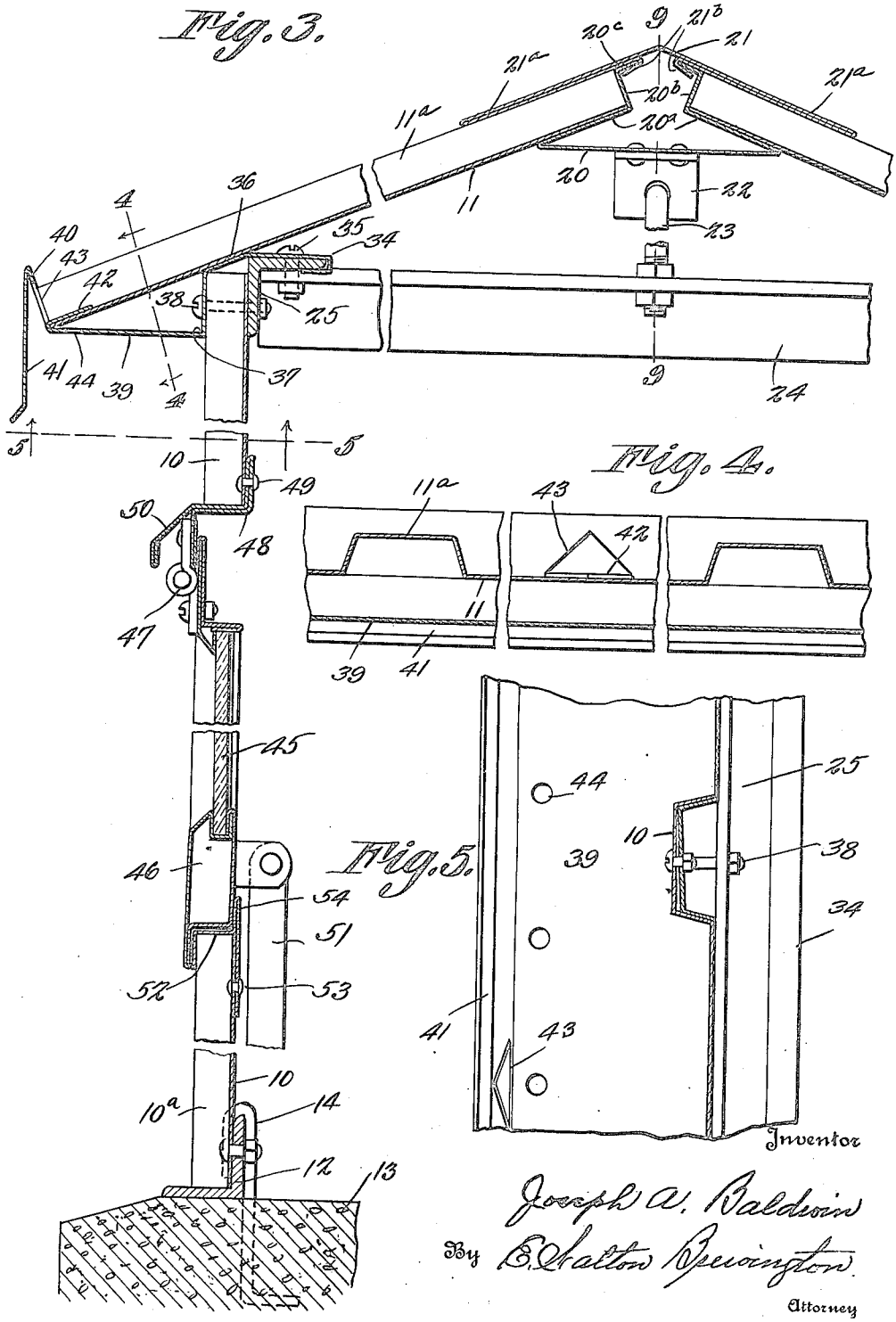

Fig. 4.

Fig. 5.

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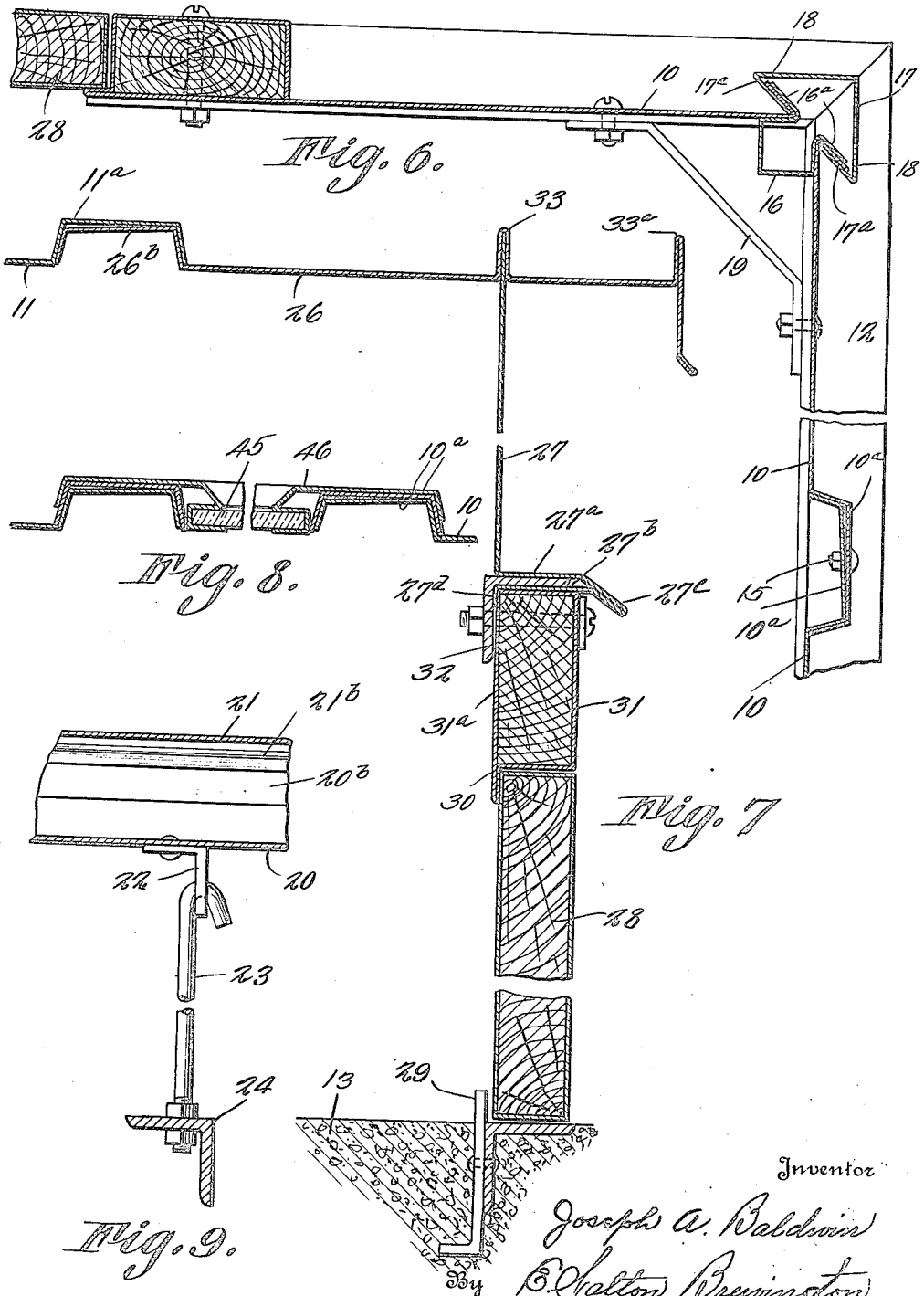

Fig. 6.

Fig. 8.

Fig. 7

Fig. 9.

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Patented Sept. 18, 1923. 1,468,100

UNITED STATES PATENT OFFICE.

JOSEPH A. BALDWIN, OF BALTIMORE, MARYLAND.

PORTABLE METALLIC BUILDING.

Application filed July 1, 1922. Serial No. 572,175.

To all whom it may concern:

Be it known that I, JOSEPH A. BALDWIN, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Portable Metallic Buildings, of which the following is a specification.

This invention relates to sheet metal buildings composed of a number of units or parts which can be shipped in knocked-down form and readily set up and united at the selected site of the building. The structure is intended more particularly for garages and similar small buildings.

It is the object of the invention to provide a structure of the kind described composed of a novel and improved construction and arrangement of units which can be easily and quickly set up and connected, and which will form a building possessing the greater strength and rigidity.

In order that the invention may be better understood, reference is had to the accompanying drawings, wherein:

Figure 1 is a side elevation of the building, Fig. 2 is a front elevation thereof; Fig. 3 is an enlarged vertical cross-section, partly broken away, taken on the line 3—3 of Fig. 1; Figs. 4 and 5 are sectional details on the lines 4—4 and 5—5 of Fig. 3; Fig. 6 is a horizontal section through one corner of the building; Fig. 7 is an enlarged vertical section on the line 7—7 of Fig. 2, partly broken away; Fig. 8 is an enlarged horizontal section on the line 8—8 of Fig. 1, and Fig. 9 is a vertical section on the line 9—9 of Fig. 3.

Referring specifically to the drawings, the sides and the roof of the building are constructed of sheets or panels of metal, the side sheets being shown at 10 and the roofing sheets at 11. These sheets are all stamped or formed with longitudinally extending ribs. The ribs of the side sheets are shown at 10^a, and the ribs of the roofing sheets at 11^a.

The sheets 10 forming the sides of the building seat at the bottom on a sill composed of angle irons 12 which are anchored down on the concrete floor or other foundation 10 by hooks 14 embedded in the latter, as clearly shown in Fig. 3. The sheets have a rib 10^a at each end and in setting up the sheets the end ribs are made to interlock or lap, with bolts 15 passing therethrough, as shown in Fig. 6, whereby the sheets are connected and rigidly secured in assembled relation to form the sides of the building.

In the design of the corner side wall connections it has been the object to do away with all bolts or similar fastenings, and to eliminate all looseness, and frailty of the conventional sliding joint. The corner connection as shown in Fig. 6 consists of a stud and a cap. The stud is made of sheet metal which is bent to form a body 16 having outstanding flanges 16^a extending throughout the entire length thereof, from opposite sides, and in opposite directions. The cap is also made of sheet metal which is bent to form a body portion 17 having inturned flanges 17^a presented toward and having their ends spaced from each other. The adjacent ends of the side sheets 10, at the corner of the building, have outwardly and reversely presented flanges 18 extending at oblique angles from said sheets. The flanges 16^a, 17^a and 18 form interlocking hooks in the parts from which they extend and they are all parallel, and in assembling the corner structure the stud 16 is located inside the building and the cap 17 on the outside, and said stud and cap are so placed that the flanges 18 fit snugly between the flanges 16^a and 17^a as shown in Fig. 6. The cap is slid down from above, thus clamping the flanges 18 of the wall sheets 10 tight against the stud flanges 16^a. This construction eliminates bolts and makes a solid, non-rattle joint, as well as one having a pleasing appearance from without and within. The joint can also be erected with ease and speed, and it possesses unusual strength and rigidity. The corner is also strengthened by a diagonal brace bar 19.

The roof of the building is composed of the ribbed sheets 11 which are connected at their inner ends to a ridge 20 and a ridge cap 21, these being also formed of sheet metal, and arranged to form a rest and a channel pocket for the roof sheets. The ridge 20 has inclined side portions 20^a on which the roof sheets seat, and at the inner end of these side portions are upturned end portions 20^b terminating in laterally extending top portions 20^c. The inner ends of the roof sheets abut against the end portions 20^b of the ridge member. The cap 21 has its side portions doubled, as shown at 21^a, and extended

parallel to the side portion 20^a of the ridge member, and spaced from the latter, whereby pockets or channels are formed to seat the inner ends of the roof sheets. At their inner ends, the bottom layers of the doubled portions 21^a of the cap are fashioned into hooks 21^b which are engaged with the parts 20^c of the ridge member. The weight of the roof bearing down on the parts 20^a causes the parts 20^c through the hooks 21^b, to force the cap 21 to bear down tight on the roof sheets, thus clamping said sheets tightly between the parts 20^a and 21^a. Bolts and screws are not required, and the entire roof can be installed by one person without walking thereon. By having the parts 20^b abutting against the inner ends of the roof sheets, the joints between the latter and the ridge member are made impervious to the entrance of rain and light.

The ridge member 20 carries a bracket 22 to which is connected an anchor rod 23 for holding the roof down in place, the lower end of said rod being secured to a cross beam 24 extending between opposite walls of the building, and bolted at its ends to angle bars 25 secured to said walls at the top thereof. Fig. 3 shows only one side of the roof structure in its entirety, which is sufficient as the structure is the same on both sides of the building.

At the ends of the roof, special sheets 26 are provided for connection with the gables 27, the latter being flat metal sheets of triangular shape. The sheets 26 are ribbed at their inner ends, as shown at 26^b for connection with the adjacent roof sheets 11, the ribs 11^a of the latter interlocking with the ribs 26^b. It will also be understood that the ribs of adjacent roof sheets all interlock in the same manner as the ribs 10^a of the side sheets 10.

Fig. 7 illustrates the gable at one end of the building, and its connection with the roof. This end of the building is provided with a double door 28 as shown in Fig. 2. The gable construction at the other end of the building is the same as that shown in Fig. 7, and hence it need not be illustrated. The door 28 is provided with a bottom stop 29, and a top stop 30, the latter being on the top cross bar 31 of the door frame, said bar being bolted or otherwise secured to an angle bar 32. The bar 31 is of wood, sheathed with metal, as shown at 31^a and this sheathing is formed with a bend to produce the stop 30.

The bottom of the gable sheet 27 has a horizontal outward bend 27^a and a parallel and spaced return bend 27^b between which the horizontal flange of the angle bar 32 seats. At their outer ends, the bends 27^a and 27^b are brought closely together and given a downward slope, as shown at 27^c. The inner end of the part 27^b has a downward bend 27^d to seat between the rear face of the sheathing 31^a of the bar 31 and the opposite vertical flange of the angle bar 32. This construction securely anchors the gable sheet 27 at the bottom without bolts or similar fasteners.

In line with the gable sheet 27, the sheet 26 is doubled to form an upstanding rib 33 between the two sides of which the top of the gable sheet seats and is tightly clamped. Forwardly of the gable sheet 27, the sheet 26 terminates in an upstanding rib 33^a, which latter, with the rib 33, form a gutter to discharge rain water in the direction of the roof sides and not over the building end.

With the roof are also associated eave members, one of which is shown in Fig. 3. This member is a single sheet of metal which is bent at one of its longitudinal edges, as shown at 34, to hook over the inwardly presented horizontal flange of the angle bar 25, said bar extending throughout the entire length of the building and binding together the upper ends of the side sheets 10. The hook 34 is also bolted to the angle flange, as shown at 35. From the hook, the eave sheet extends across the top of the sheets 10, in contact with the under side of the roof sheets 11, as shown at 36, and then downwardly in front of and in contact with the sheets 10 as shown at 37, being secured to the latter by the bolts 38 which secure the angle bar 25.

At the bottom of the bend 37, the eave sheet has an outward horizontal bend 39, then an upward bend 40 to extend along the outer end of the roof sheets 11, and then a final downward bend 41 is made from the top of the bend 40. Tongues 42 are punched out of the bend 40 and bent over on top of the roof sheets 11 to hold down the latter, and the openings 43 produced by these tongues permit the escape of water running down the roof, the same being discharged behind the part 41, which latter acts as a guard to prevent the water from running down the side of the building, and also from being discharged on abutting property. The part 39 also has apertures 44 to permit the escape of any water which might back under the roof sheets and get into the space between said part 39 and the overhanging portion of the roof. The eave member eliminates entirely the use of bolts or similar fastenings to hold the roof in position, and it also facilitates speed of erection.

The building may also be provided with a side door 55 and a window. The window structure is shown in detail in Figs. 3 and 8. The window pane 45 is mounted in a sheet metal sash 46 which is hinged at the top, as shown at 47, to swing outwardly. The window opening is so located that there is a pair of interlocking ribs 10^a on each side

thereof, as shown in Fig. 8, these ribs forming the sides of the window frame. The top of the window frame is formed of a sheet metal strip 48 which is doubled and riveted or otherwise secured to the side sheets 10, as shown at 49. In front, the strip 48 is bent to form an inclined outstanding flange 50 to shed rain and prevent the same from running down the window. Any suitable means may be provided for holding the window open, a fragment thereof being shown at 51. The bottom of the window frame is a sheet metal strip 52 riveted or otherwise secured to the sheets 10, as shown at 53, and having a bend 54 forming a stop for the window.

I claim:

1. A metallic building structure having sides which are provided at the corners of the building with outwardly and reversely extending flanges, studs positioned at said corners and having outstanding flanges and caps for the corners provided with inturned flanges, the flanges of the building sides and the cap and the stud flanges forming hooks which interlock, and the first-mentioned flanges seating between the cap and the stud flanges.

2. A metallic building structure having sides which are provided at the corners of the building with outwardly and reversely extending flanges, corner studs, and corner caps, said studs and caps having flanges, said flanges and the flanges of the building sides forming hooks which interlock.

3. In a metallic building structure, a gable sheet, a roof sheet having means for clamping the top of the gable sheet, a cross-bar below the bottom of the gable sheet, and an angle-bar carried by the cross bar, and having its horizontal flange spaced from the top thereof, the bottom of the gable sheet having horizontal forward and return bends between which said flange is clamped.

4. In a metallic building structure, a gable sheet, a roof sheet having means for clamping the top of the gable sheet, a cross-bar below the bottom of the gable sheet, and an angle-bar carried by the cross-bar, and having its horizontal flange spaced from the top thereof, the bottom of the gable sheet having horizontal forward and return bends between which said flange is clamped, the return bend also having a downward bend at its extremity which seats between the vertical flange of the angle-bar and the opposite face of the cross-bar.

5. In a metallic building structure, a roof, and an eaves member secured at one end to the building side and having an outstanding portion located beneath the roof end, said outstanding portion having an upward bend extending along the end of the roof and provided with punched out tongues which are engagable with the top of the roof, said tongues producing water-discharge openings in the upward bend, and a depending guard portion in front thereof.

6. In a metallic building structure, a roof, and an eaves member secured at one end to the building side and having an outstanding portion located beneath the roof end, and provided with water-discharge apertures, said outstanding portion having an upward bend extending along the end of the roof and provided with punched out tongues which are engagable with the top of the roof, said tongues producing water-discharge openings in the upward bend, and a depending guard portion in front thereof.

In testimony whereof I affix my signature.

JOSEPH A. BALDWIN.