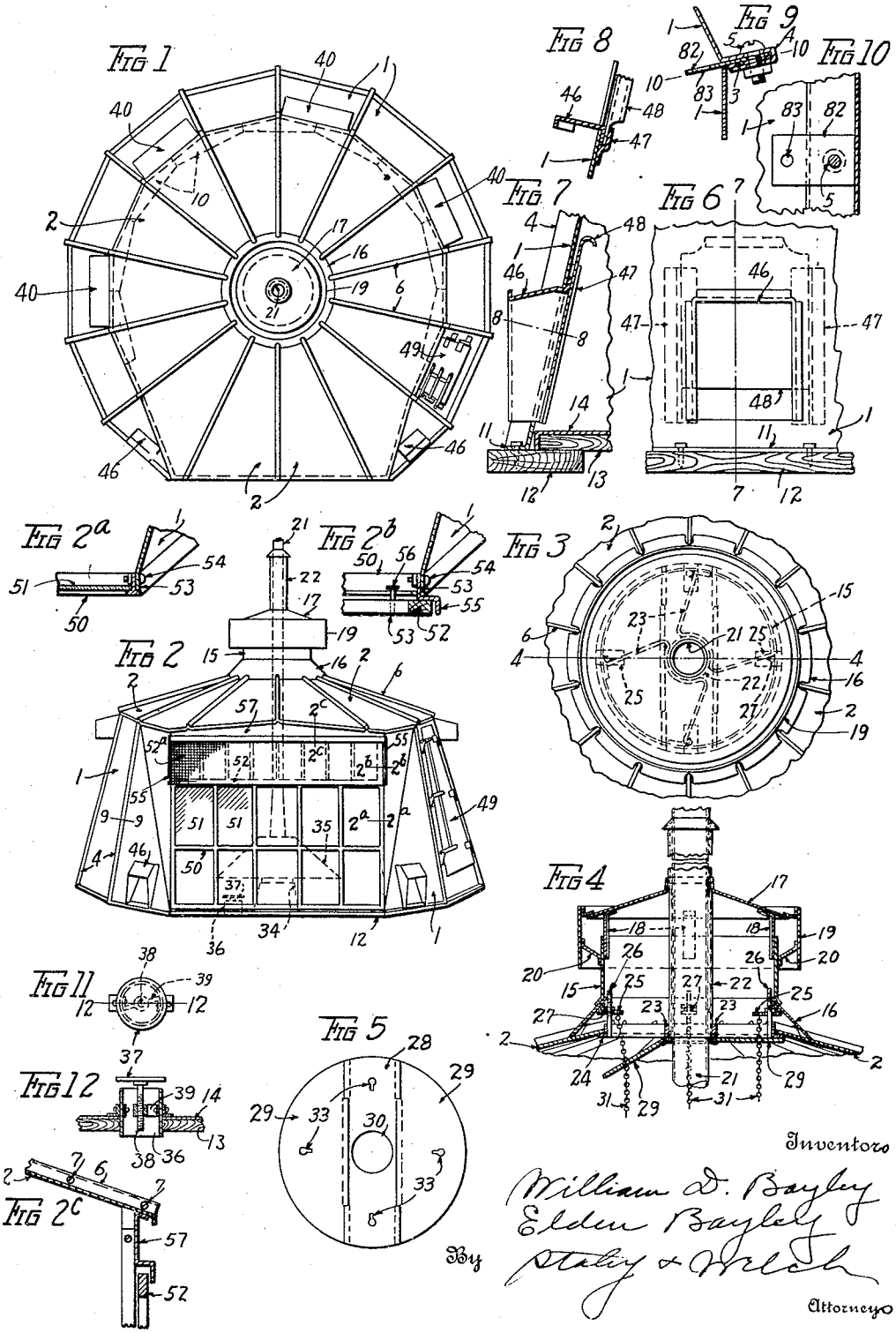
March 8, 1932. W. D. BAYLEY ET AL 1,848,690

SHEET METAL HOUSE

Filed Feb. 23, 1928 2 Sheets-Sheet 1



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SHEET METAL HOUSE

Filed Feb. 23, 1928 2 Sheets-Sheet 2

FIG 13

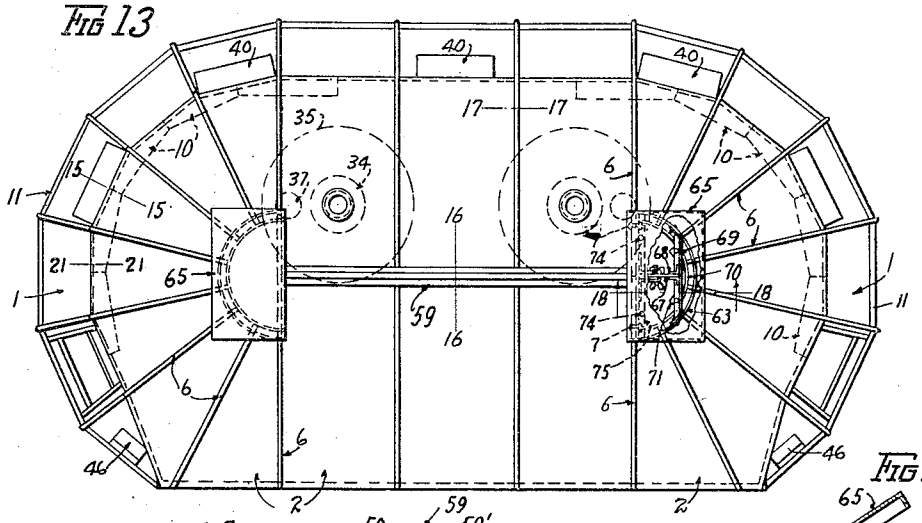


FIG 15

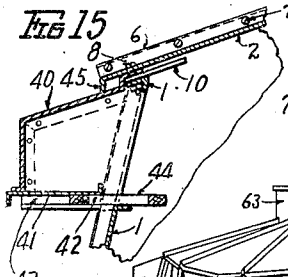


FIG 16

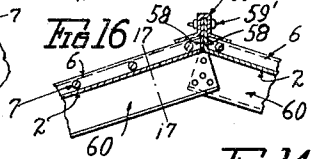


FIG 17

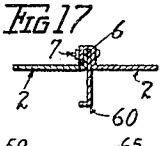


FIG 18

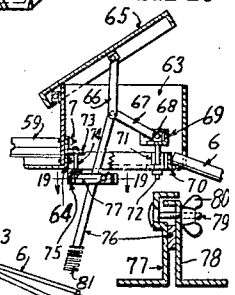


FIG 14

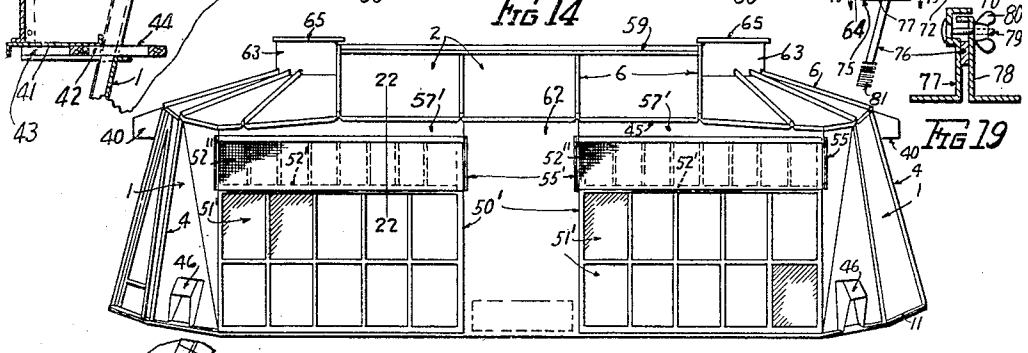


FIG 19

FIG 20

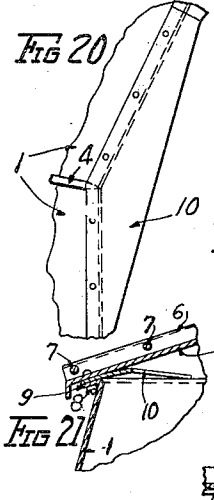


FIG 22

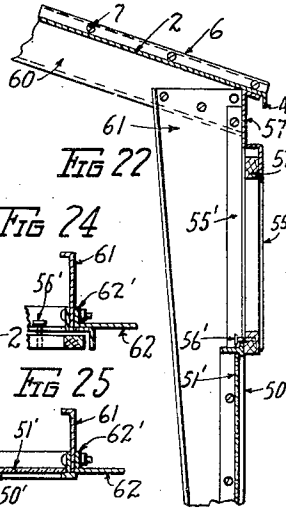


FIG 23

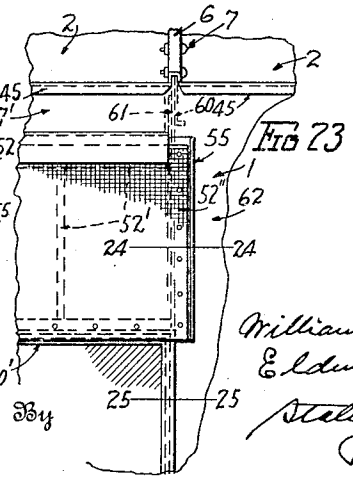


FIG 24

FIG 25

FIG 21

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Patented Mar. 8, 1932

1,848,690

UNITED STATES PATENT OFFICE

WILLIAM D. BAYLEY AND ELDEN BAYLEY, OF SPRINGFIELD, OHIO

SHEET METAL HOUSE

Application filed February 23, 1928. Serial No. 256,108.

This invention relates to a house constructed principally of sheet metal for housing fowl, hogs and the like.

One of the objects of the invention is to provide a house of a knockdown character which may be economically manufactured and readily erected at the place of installation.

Another object of the invention is to provide a house, the parts of which are so constructed as to allow the house to be readily enlarged if desired by the interposition of additional portions in a simple and economical manner.

A further object of the invention is to provide improved means for ventilating structures of this character; a more specific object in this connection being to so construct the ventilator receiving opening in the roof that the opening may be adapted to receive a single centrally arranged circular ventilator or may be divided to receive a pair of ventilators of different form.

A further object of the invention is to provide for admission of heat and light of the sun and to also provide for the admission of the ultra violet rays of the sun.

A further object of the invention is to provide for ventilating the structure by the introduction of fresh air and discharge of foul air in a manner to obviate subjecting the chicks to direct contact with the cold air before the air is heated.

A further object of the invention is to provide a light weight sheet metal house that is well braced against roof loads and wind strains through the use of inwardly and upwardly inclined side sheets and roof sheets, both having flanges and reinforced sheet joints serving as posts and as struts, the whole assembled to floor boards in a way to utilize the latter as tension members.

In the accompanying drawings:

Fig. 1 is a top plan view of a house embodying our improvements.

Fig. 2 is a front elevation of the same.

Fig. 2^a is a section on the line 2^a—2^a of Fig. 2.

Fig. 2^b is a section on the line 2^b—2^b of Fig. 2.

Fig. 2^c is a section on the line 2^c—2^c of Fig. 2.

Fig. 3 is an enlarged top plan view of a portion of the roof and its ventilator, showing some of the parts in dotted lines.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a detail view of the damper for the roof ventilator shown in Figs. 3 and 4.

Fig. 6 is a side elevation of a portion of the side wall of the structure and its ventilator.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Fig. 8 is a section on the line 8—8 of Fig. 7.

Fig. 9 is a section on the line 9—9 of Fig. 2.

Fig. 10 is a section on the line 10—10 of Fig. 9.

Fig. 11 is a top plan view of the floor air inlet.

Fig. 12 is a section on the line 12—12 of Fig. 11.

Fig. 13 is a top plan view of another form of a house, with one of the ventilators partly broken away.

Fig. 14 is a side elevation of the same.

Fig. 15 is a section on the line 15—15 of Fig. 13.

Fig. 16 is a section on the line 16—16 of Fig. 13, showing the reinforcing sheets bolted into the joints in the straight part of the roof.

Fig. 17 is a section on the line 17—17 in both Fig. 13 and Fig. 16, showing the reinforcing joint sheet in position.

Fig. 18 is a section on the line 18—18 of Fig. 13.

Fig. 19 is a section on the line 19—19 of Fig. 18.

Fig. 20 is a top plan view of a portion of the side wall of the structure showing one of the connector plates for strengthening the structure circumferentially.

Fig. 21 is a section on the line 21—21 of Fig. 13.

Fig. 22 is a section on the line 22—22 of Fig. 14, showing reinforcing joint plates on the window side of the building.

Fig. 23 is an enlarged elevation of a portion of the front of the structure shown in Fig. 14.

Fig. 24 is a section on the line 24—24 of Fig. 23, showing a section of the joint rein-

forcing plate and the ultra violet glass frame.

Fig. 25 is a section on the line 25—25 of Fig. 23 showing a section of the joint, reinforcing plate and the plain glass frame.

Referring first to the form of the structure shown in Figs. 1 and 2, the house therein illustrated is substantially circular in form, the outer wall of which is constructed of a series of sections 1 of sheet metal and the roof of a series of sections 2 of the same material, the side of each section in the present case converging toward its upper end. The side sections 1 lean inwardly by reason of this convergence and adjacent edges are united together in the manner illustrated in Fig. 9 in which it will be seen that the edge of one sheet is bent to form a lateral flange 3 with the edge of the other sheet bent about the flange and the reinforcing plate 82 hereinafter referred to as indicated at 4 and all clamped together by bolts 5. The adjacent side edges of the roof sections 2 are united and reinforced in a similar manner, the edges of one section being bent to form a lateral flange and the other section bent to form a U-shaped flange 6 embracing the flange and united to it by bolts 7 Figs. 2e and 21).

As shown best in Fig. 21, the side sections 1 are united to the roof sections 2 by bolts 8 which pass through the roof sections and also through outwardly projecting lateral flanges 9 formed by bending the upper edges of the side sections. To stiffen the structure circumferentially at this point there is interposed between the flanges 9 and the roof sections a series of connector plates 10 (see also Figs. 1 and 20). These connector plates are of sheet metal and are preferably of a length equal to the width of the upper portion of each side section and are so placed as to break the joints between the side sections.

The lower edge of each side section 1 is bent to form an outturned flange 11 which is secured to wooden battens 12 (Figs. 2, 6 and 7). These battens support floor boards 13 which are preferably covered with sheet metal 14.

The upper ends of the roof sections 2 are cut to form a circular opening for ventilating purposes. This opening is surmounted by a flue 15 (Fig. 4) having secured to its lower end a flaring support 16 which rests upon the roof and has its lower edge notched to receive the flanges 6. A hood 17 is connected with the upper end of the flue by a series of arms 18 which space the hood from the flue to provide an outlet opening for the foul air, this opening being surrounded by a band 19 which is supported from the flue by arms 20. A stove pipe 21 projects centrally through the opening in the roof and through a central opening in the hood 17 and is surrounded by a jacket 22 for insulating purposes. The jacket is in spaced apart relation with the pipe to provide an air space and is supported by a pair of straps 23 bent to a substantial U form, with the inner portion secured to the jacket and the outer ends of the legs thereof secured to a ring 24 of angle iron fitted to the central opening in the roof. This angle iron ring is connected to knees 25 secured to the inner side of the flaring support 16, which knees receive threaded stems 26, welded to the ring, with nuts 27 threaded on the stems in engagement with the knees, thus enabling the flue and its connected parts to be clamped to the roof. A damper is provided for the opening through the roof consisting of a central stationary section 28 and two movable sections 29 (Figs. 4 and 5) and the stationary section has an opening 30 to receive the stove pipe and the movable sections are hinged thereto by any suitable form of hinge. This damper is held in position by chains 31 suspended from the knees 25 and passing through openings 33 each shaped like a key hole, in the respective sections of the damper. These chains, when engaged with the narrow portion of the holes, hold the sections in suspended position, but either one of the hinged sections 29 may be allowed to open by disengaging the corresponding chain from the narrow portion of the opening and then re-engaging it to hold the section in any desired position of adjustment, or all three sections may be lowered if desired. To close either section the chain is disengaged and the section pushed closed by the attendant standing on the floor of the house.

A stove indicated in dotted lines at 34 is provided for warming the structure. This stove in the present case is of the ordinary coal burning type used in brooders, rests on the floor of the structure and is surmounted by a canopy indicated in dotted lines at 35 of the usual kind employed with brooder stoves, but any other kind of heating unit can be used such as a lamp or electric heater. In order to admit fresh air to the structure in an effective and economical manner, the floor at a point beneath the canopy is provided with an opening in which is fitted a thimble 36 (Figs. 11 and 12 for detail) secured into a hole to the floor. A valve 37 is provided to regulate the admission of the air, the valve having a threaded stem 38 which screws into a bridge piece 39 supported by the thimble. Admission of the air is regulated by screwing the stem of the valve in or out to admit a less or greater quantity of air as desired. This inlet opening, being located beneath the canopy, admits the air to the warmest portion of the house so that the fresh air is quickly warmed before circulating through the structure. Admission of the air closely adjacent the stove insures the proper degree of temperature on the floor where the chicks live.

Additional air inlet openings are provided in the upper portion of the side wall adja-

cent the roof. Referring particularly to Fig. 15 one of the side wall sections which is shown having its upper portion cut away to form an opening which is enclosed by a sheet metal hood 40, open on its under side but adapted to be closed by a valve in the nature of a sheet metal plate 41 which slides over a wooden frame 42 mounted in ways 43 formed by bending the lower edges of the side of the hood 40 inwardly. Stretched across the wooden frame is a piece of fabric 44. With the valve in the position shown in Fig. 15 the vent opening is closed but by removing the valve entirely and pulling the frame 42 outwardly diffused air may be admitted through the fabric. The inner edge of the top of the hood 40 is bent to form a shoulder and is inserted between the roof section and the connector plate 10. The shoulder is provided in order that the hood may accommodate the down turned drip piece 45 formed by bending the outer edge of the roof section downwardly.

In Figs. 6, 7 and 8 are shown the detail of an opening provided for the admission or exit of fowls. One of the wall sections is cut out to form an opening in which is inserted a sheet metal hood 46, the inner edges of the top and sides of which are bent to fit the walls of the opening and are secured thereto in any suitable manner. To the side edges of the opening in the section 1 are secured ways 47 in which are slidably mounted a door 48.

One of the wall sections 1 is provided with an attendant's door 49 of any suitable construction as shown in Figs. 1 and 2.

In front of the structure there is placed a metallic sash 50 having glass windows 51 for the admission of the heat and light of the sun and above this sash 50 is a wooden sash 52 covered with fabric for summer use, or for winter with glass cloth or the like for the admission of the ultra-violet rays of the sun, as indicated at 52^a. The sash 50 is secured in a frame formed by bending the side edges of the two adjacent side sections 1 as indicated at 53 in Fig. 2^a, these adjacent side sections 1 being so formed that the sides adjacent the sash extend in a vertical diection so that the frame 53 will conform to the vertical sides of the sash. The sash is connected to the frame by bolts 54. To form the frame for the wooden sash 52, there is secured to the frame 53 adjacent the sash 52 an auxiliary Z-shaped frame piece 55 in the outer turn of which is fitted the sash 52 (Figs. 2^b and 23). The lower edge of this sash 52 overlaps the upper edge of the sash 50 and is held in position by the heads of tacks or nails 56 driven into the wooden frame 52 and hanging over one of the flanges of the metallic sash 50, which is of T-shape in cross-section; means of fastening being also shown in connection with the construction illustrated in Fig. 22. A transom of sheet metal 57 is placed above the wooden sash 52 shaped to close the space between the upper side of this sash and the roof. This transom is secured to the roof sections as shown in Fig. 2^c by bending the upper edge of the transom sheet to form an outwardly turned flange which is secured to the roof sheets. As shown in this figure the transom sheet has an outwardly and downwardly bent lower edge which overhangs the upper edge of the wooden frame 52 to not only assist in holding the frame in position but also act as a water shed. The transom sheet can be of any desired height and also acts as a girder or beam for the roof support.

In winter air may be admitted only through the opening in the floor beneath the canopy and discharged through the ventilator in the roof, the ventilators in the side wall just beneath the roof being closed by the sheet metal portions 41. In this case glass cloth is used in the frame 52. For summer however the fabric may be substituted for the glass cloth in the frame 52 and the wooden frame 42 with the fabric 44 slid into position so that a cross current of diffused air may be caused to circulate in the upper portion of the structure.

In Figs. 13 and 14 is shown a house constructed by dividing the round house of Fig. 1 and Fig. 2 and interposing between the two halves additional sections of side walls and roof to make a house of an elongated character. The additional roof sheets 2 instead of being of triangular form like the ones for the round house are rectangular in form. The adjacent inner edges of these roof sheets are connected together in the manner indicated in Fig. 16 in which it will be seen the edge of each roof sheet is bent to form an upturned flange 58, these flanges being straddled by a ridge rail 59 of U-form and all the parts connected together by bolts 59′. The roof is strengthened by sheet metal rafters 60 which are clamped in the seams between the side edges of the roof sheets as shown in Fig. 17. The inner ends of these rafters are connected together by screws or bolts as shown in Fig. 16 while the outer end of each rafter is secured by screws or bolts to the upper end of the rib or reinforcing member 61 as indicated in Fig. 22. In this elongated house, the forward side thereof is closed by a pair of metal sashes 50′ having window panes 51′ and by a pair of wooden sashes 52′ covered with cloth glass 52″. These sashes are secured in position in a manner similar to the sashes for the round house with the exception that the Z-shaped frame pieces indicated at 55′ for the inner sides of the sashes 52′ are secured to a structural sheet metal rib 61 as shown in Figs. 22 and 23. Sheet metal transoms 58′ of slightly different shape are employed but these transoms overhang the upper edge of the sash 52′ as described in connection with sashes 52 for the round house, the lower edges of

each sash being held to the metal sash 51′ by the heads of nails 56′ as previously described. A sheet metal panel 62 closes the space between the respective sashes. The upper edge of this panel is secured to the adjacent roof sheet 2 in the manner described in connection with the side sections. Each side edge of the panel is bent at right angles to form a flange 62′. As shown in Figs. 24 and 25 this flange lies against the rib 61 and is secured by the same fastening devices that secure the Z-shaped pane 55′ and the metal sash 50′ to the rib.

When the round house is converted into an elongated house as thus described, the round house ventilator is discarded, leaving two half round openings in the roof portion of each half of the round house. A roof ventilator of different form is applied to each half round opening, the details of which are illustrated in Figs. 18 and 19. Inserted in each opening is a semicylindrical flue 63, the outer rounded lower edge of which is notched to receive the joints 6 of the roof of the round portion of the structure. Each of the adjacent rectangular roof sections 2 is cut out at the corner adjacent the flue and bent upwardly to form a flange 64 to which the straight wall of the ventilator is attached as shown in Fig. 18. Hinged to the ventilator is a cover 65 to which is pivoted one of the members 66 a pair of toggle levers, the other member 67 of which is pivoted to a bracket 68 secured to an angle bar 69 of angle form in cross section which extends across the interior of the ventilator and is secured thereto in any suitable manner.

A bar 70 of angle section bent to a semi-circular form is placed under the edge of the roof sheets and serves to clamp the ventilator to the roof. Short sections of angle iron 71 are welded to the angle iron 70 and bolts 72 are passed through the bar 69 and the short sections 71. Another angle piece 73 is bolted along the flat side of the ventilator and secured to two of the room seams, two of the seam bolts 7 being used for this purpose, and through this bar are inserted two bolts 74 which draw up an angle bar 75 against the semi-circular angle. By this means the whole ventilator is secured to its place with the minimum of bolts or drilling of holes in the roof sheets.

To hold the cover 65 open, a bar 76 is hinged at the point where the bars 66 and 67 join, this bar dropping downwardly between two members 77 and 78, welded to the bar 75 and forming the clamping device. A bolt 79 and a wing nut 80 are used to get the proper friction. A spring 81 is attached to the lower end of the bar 76 to prevent injury to the operator in case he bumps his head against the down-hanging bar.

For the purpose of lining the interior of the side walls with old newspapers, magazines and the like for warmth, I provide a series of wire receiving holes (Figs. 9 and 10) in the reinforcing plates 82 which are inserted in the side wall seams and secured in position by the bolts 5. These members project laterally from the interior of the side wall and are provided with perforations 83 so that a wire (not shown) may be strung from one to the other around the walls and roof to act as hangers for the newspapers and magazines.

Having thus described our invention, we claim:

1. In a structure of the character described, a plurality of sheet metal side sections and a plurality of sheet metal roof sections, adjacent edges of said side sections and roof sections being connected together, the upper edges of each side section having an out-turned flange, a series of connector plates interposed between the said flange and the roof sections, and means for connecting said flanges, connector plates and roof sections together.

2. In a structure of the character described, a plurality of sheet metal side sections and a plurality of sheet metal roof sections, adjacent edges of said side sections and roof sections being connected together, the upper edge of each side section having an out-turned flange, a series of connector plates interposed between the said flange and the roof sections, and means for connecting said flanges, connector plates and roof sections together, said connector plates extending across the joints between said side sections.

3. In a structure of the character described, sheet metal side walls, said walls being terminated at the front of the structure, a pair of sashes inserted in the front of the structure together with means for securing said sashes in position, the edges of those side walls adjacent the front being bent to conform to the vertical sides of the window glass sash, with means for securing the two together, sash pieces secured to said edges above said window glass sash to form a frame for the other sash together with means for holding said last mentioned sash in position.

4. In a structure of the character described, enclosing sections formed of sheet metal having their edges provided with out-turned flanges secured together, and a series of members forming wire supports inserted between said flanges and held in position thereby on the interior of said structure.

5. In a structure of the character described, sheet metal sides, a sheet metal roof secured to said sides, said sides being discontinued at the front of the structure for a window opening, the edges of said sides at the points of discontinuance being bent so as to stand in parallelism to provide a sheet metal sash frame integral with said sheet metal sides, a sash with windows inserted be-

tween the parallel portions of the edges of said sides, and fastening devices extending through said parallel edges and the sash for securing the sash in position.

6. In a structure of the character described, sheet metal side walls, said side walls being terminated at the front of the structure to form an opening, the sides of which are outturned to stand in parallel relation, a lower metallic sash having window glass fitted between said outturned edges, means extending through said edges and sash for connecting the same together, a second upper sash inserted in said opening above said first sash and supported thereby, and enclosing members for the sides of said second sash secured to said outturned edges.

7. In a structure of the character described, side walls formed of a plurality of flat sheet metal sections, the side edges of each section being converged upwardly, means for connecting adjacent side edges of said sections directly together to form a wall of polygonal character which tapers inwardly from bottom to top, and roof sections of sheet metal connected with the upper edges of said side sections, said inclined side sections forming a structure of a self-sustaining character capable of alone supporting the roof structure.

8. In a structure of the character described, side walls formed of a plurality of flat sheet metal sections, the side edges of each section being converged upwardly, means for connecting adjacent side edges of said sections directly together to form a wall of polygonal character which tapers inwardly from bottom to top, and roof sections of sheet metal connected with the upper edges of said side sections, each of said roof sections having its side edges converged toward the upper portion of the roof, together with means for connecting said edges together, said inclined side sections forming a structure of a self-sustaining character capable of alone supporting the roof structure.

In testimony whereof, we have hereunto set our hands this 4th day of February, 1928.

WILLIAM D. BAYLEY.
ELDEN BAYLEY.