P. N. NISSEN.

JOINT FOR USE IN CORRUGATED METAL CONSTRUCTION.

APPLICATION FILED DEC. 6, 1917.

1,351,435. **Patented Aug. 31, 1920.**

Fig. 1.

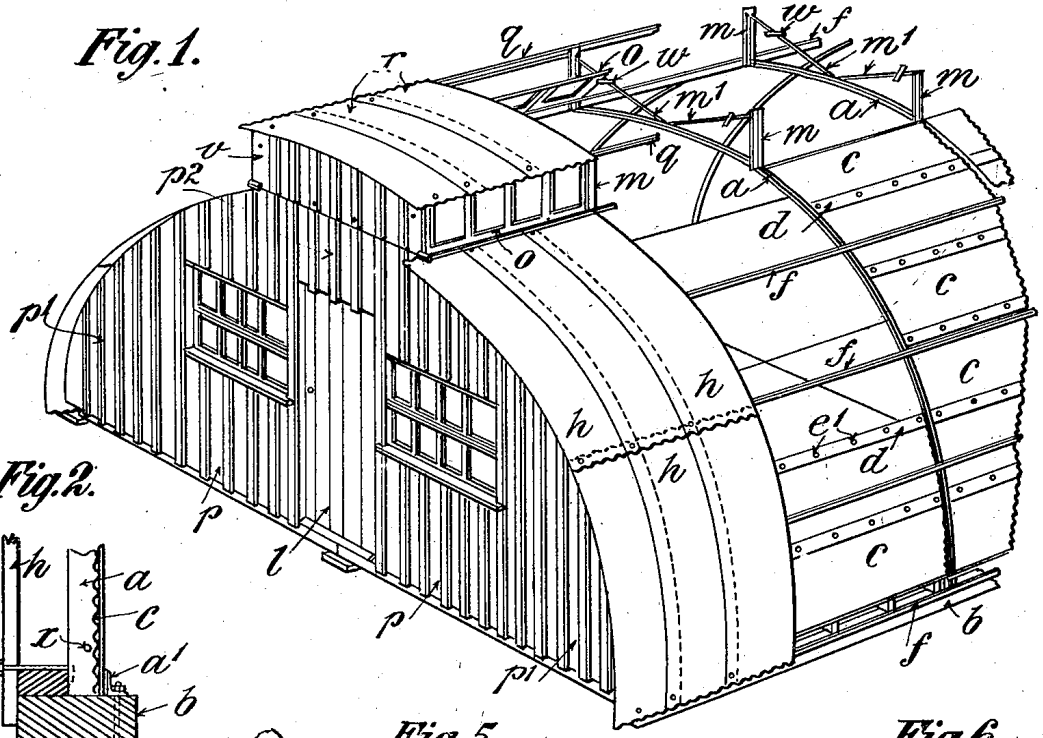


Fig. 2.

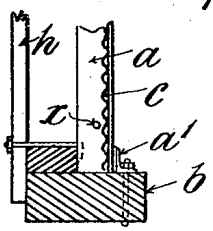


Fig. 5.

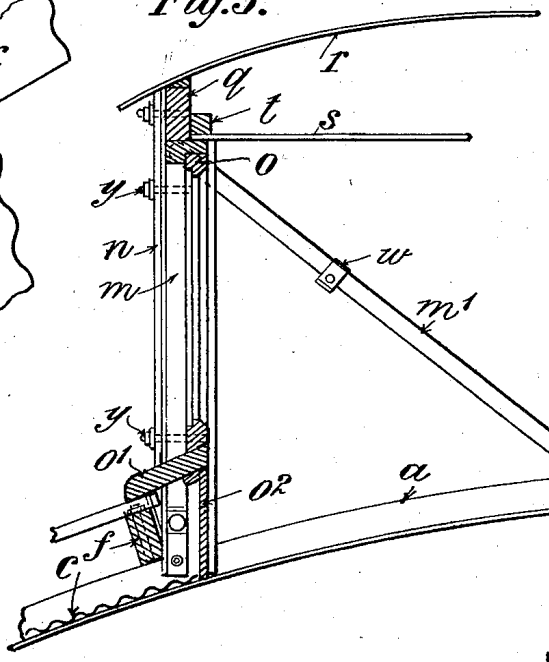


Fig. 6.

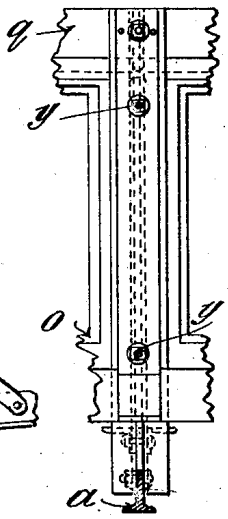


Fig. 3.

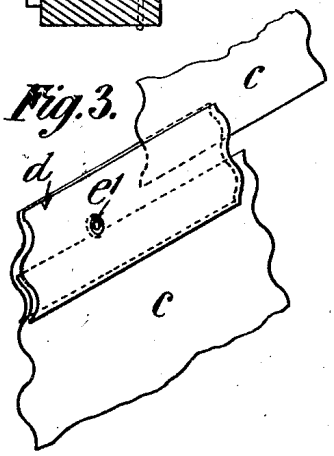
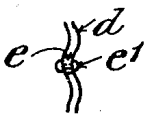


Fig. 4.



INVENTOR.

P. N. Nissen.

Per Paul B. Reeves.

Attorney.

UNITED STATES PATENT OFFICE.

PETER NORMAN NISSEN, OF LONDON, ENGLAND.

JOINT FOR USE IN CORRUGATED-METAL CONSTRUCTION.

1,351,435. Specification of Letters Patent. Patented Aug. 31, 1920.

Application filed December 6, 1917. Serial No. 205,861.

To all whom it may concern:

Be it known that I, PETER NORMAN NISSEN, D. S. O., a subject of the King of Great Britain and Ireland, residing at 1 Finsbury Circus, London, England, and now lieutenant colonel commanding Royal Engineer G. H. Q. troops of the Expeditionary Force in France, have invented certain new and useful Improvements in Joints for Use in Corrugated-Metal Construction, of which the following is a specification.

This invention relates to joints for use in corrugated metal construction.

The object of my invention is to provide such a weather-proof joint which shall permit of the ready assembling of sheets of corrugated metal and like material, and shall hold the assembled sheets securely in position.

For the purpose of illustration merely, I have shown and described my invention as applied to a portable building of the bow or semi-circular type, the lining sheets of the building illustrated being joined by my improved means.

Figure 1 is a view in perspective of the building in various stages of construction,

Fig. 2 is a broken view in cross section—on a larger scale—showing how the ribs are fixed to the sills, how the lining sheets are fixed to the ribs and how the outer covering is fixed to the purlins.

Figs. 3 and 4 are views—on an enlarged scale—showing the means of joining the lining sheets, and

Figs. 5 and 6 are broken views in side elevation and cross section respectively—on a larger scale—showing the construction of the lantern light and ventilator. Throughout the views similar parts are marked with like letters of reference.

The frame of the building comprises a series of bow or semi-circular ribs *a* of T-iron each of which consists of three similar sectors which carry angle iron brackets *a'* at their ends which provide means for fixing the sectors together and the end sectors to the sills *b* on which the ribs rest. The ribs are bent so that their webs are exterior to the curve. The sills are each made up of a series of similar lengths which coincide with the pitch of the ribs so that the same bolts which hold the ribs to the sills by means of the angle iron brackets a^1 also serve to hold the lengths forming the sill together.

The building is lined with sheets of corrugated iron *c* which are all cut of a length to fit between the vertical members of any two ribs *a*. The sheets may be of any suitable width so long as they are all alike. The edges of the adjacent sheets *c* are fitted together by means of junction pieces *d* which embody one form of the improved joint claimed herein. These joints each consist of two strips of corrugated iron sheeting of the same pitch as the lining sheets which are fixed together along their longitudinal center lines with interposed washers *e* or other suitable distance pieces between them by means of rivets bolts or other suitable holding devices e^1 which pass through said washers or distance pieces, so as to form opposed longitudinal slots adapted to receive the edges of the lining sheets. The width of the junction pieces *d* is such that each groove is of a depth equal to the pitch of the corrugations of the lining sheets. Obviously, in the use of my improved device, the sheets of material may be joined by merely sliding their edge corrugations longitudinally into the grooves formed by the junction pieces or strips *d*, thus making the assembling, and disassembling of portable structures very simple and rapid. The lining sheets are kept in position relative to the ribs *a* by means of wire nails *x* or other suitable spikes through holes in the webs of the ribs and overhanging same on each side.

In the erection of the building the lining sheets are placed in position immediately after the ribs have been fixed to the sills. First the bottom sheet in each bay is placed in position between the webs of the ribs and is secured in position by inserting a spike in the lower holes in the webs of the ribs provided for the purpose. To join the next sheet the top edge of each lower sheet is sprung back and the second sheet is slipped on to the junction piece from the end. These sheets are then held in position at their lower edge by further spikes. After three sheets have been placed in position the lower purlins *f* are fixed to the ribs by

any suitable means and the remaining lining sheets c and purlins f are added in a similar manner.

The exterior of the building is also covered with corrugated iron sheets h which are all of one size and are applied with the usual overlap.

These sheets are fixed to the purlins by means of suitable screws and washers.

The ends of the building are filled in with two window panels p, two end panels p^1 and a center panel p^2 below which is fitted the door l, said panels being constructed of vertical boarding with battens covering the joints or of matched boarding.

The lantern light and ventilator is constructed as follows:—At a suitable distance apart two vertical members m and m are bolted to each of the ribs a, said members (m) being braced to the ribs by means of stays m^1 arranged in pairs. The vertical members m each consist of two lengths of angle iron which at one end are adapted to straddle the web of the rib and to be fixed thereto by a bolt and at the other end are loosely riveted together with the stay m^1 and a washer between them. The object of this construction is to provide openings for the passage of the bolts by which the frames of the windows are fixed and to enable each vertical member m and its stay m^1 to be folded so as to lie closely together to facilitate packing.

The frames of the lantern windows which are provided with sills are slipped between the angles of the vertical members m and are held in place by means of battens n which are of such a width as to engage the ends of the adjacent frames and bolts y passing through said battens and said members m. On the top of the members m on each side are fixed purlins q which support a cover or roof r of corrugated iron sheets. Under this cover or roof is an inner lining s also made of corrugated iron sheets which rests on the top of the window frames o between the battens q and is held in position by wooden strips t nailed to said battens. The ends of the lantern light are closed by panels v. The windows both of the lantern light and in the ends of the building are glazed with oiled fabric or glass the former being hinged at the bottom to open inward suitable stops w being mounted on the stays m^1 to limit the amount said windows can open. The spaces between the outer sheets h and the inner sheets c within the lantern light are covered by panels o^2.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A device for joining sheets of corrugated material, comprising a pair of strips of material, each of said strips being corrugated similarly to the corrugations of the sheets to be joined, and means for securing said strips together on opposite sides of the sheets to be joined, whereby said strips are caused to contact with said sheets, throughout the length and breadth of said strips.

2. A device for joining sheets of corrugated material, comprising a pair of strips of material, each of said strips being corrugated similarly to the corrugations of the sheets to be joined, distance pieces, and means for securing said strips together with the distance pieces interposed therebetween, whereby a relative longitudinal movement between said pair of strips and said sheets effects the juncture of said sheets.

In testimony whereof I have signed my name.

PETER NORMAN NISSEN.