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(71) Applicant: **NISSEN PETER NORMAN (GB)**
(72) Inventor: **NISSEN PETER NORMAN (GB)**

(54) **HOUSE**
(54) **MAISON**

1.3

179087

S P E C I F I C A T I O N .

To All Whom It May Concern:

Be It Known that I, [illegible] of 1, Finsbury Circus, London England, Major, 44th Company Royal Engineers of the British Expeditionary Force in France, have invented certain new and useful improvements in and relating to portable buildings, of which the following is a specification:-

This invention relates to portable buildings of the bow or semi-circular type in which the roof extends to the floor, and it has for its object facilitating the standardization of the parts, reducing the number of different parts to a minimum, limiting the sizes of the several parts for the purpose of facilitating transport, simplifying the work involved in setting up and taking down, reducing the total weight of the material to a minimum without impairing the strength and stability of the building, providing a space of maximum simplicity between the inner and outer walls, and obtaining a maximum floor space per unit of cost.

I attain these ends by forming the frame of the building of a series of light bow or semi-circular shaped ribs each formed of three or more similar elements, connecting said ribs together by a series of external longitudinally arranged purlins, and by employing corrugated

iron sheets for the outer cover, said sheets being fixed to the purlins - which are spaced to enable the ends of the corrugated sheets to be fixed to same - so that they operate to assist the bow-shaped ribs to give the necessary strength to the structure and enable said ribs to be made of a lighter section than would otherwise be possible.

In the accompanying drawing which illustrates this invention:-

Fig.1 is a view in cross section of the improved building.

Fig.2 is a broken view in plan - partly in section thereof.

Figs.3 & 4 are broken views in section showing the joint in the purlins and ribs

Fig. 5 & 6 are broken views in longitudinal section, in transverse section and in horizontal section respectively, showing the connection of the feet of the ribs with the bearers.

Fig 8 is a broken view in section showing one of the hook bolts for securing the end panels in relation to the end rib.

Fig.9 is a broken view in section showing an alternative method of fixing the ribs to the bearers.

Figs.10 & 11 are broken views showing how the recesses are formed in connection with the ribs, and

Fig.12 is a view in section showing an alternative method of forming the recesses.

Throughout the views similar parts are marked with like letters of reference.

According to the present invention, a series of bow or semi-circular supporting members or ribs A are mounted

or bearers b which are made in suitable lengths halved together at their junctions. These members or ribs carry on their inner sides the lining d of the building and on their outer sides the purlins e which carry the outer wall or roof f. The ends of the building consist of a series of panels b fitting in vertical struts k, said panels containing the necessary windows, doors and ventilators.

The ribs a are each made up of three or more lengths which are secured to one another by means of angle-iron brackets a^1 and bolts and nuts. These ribs are of a suitable section to provide or assist in providing a recess m on each side thereof. In Figs. 10 & 11 of the accompanying drawing these ribs are shown of T section iron, and the recesses m are formed by and between the horizontal parts of said ribs and slats n which are arranged in parallel relation to said horizontal parts on each side of the vertical part of the rib and fixed in relation thereto by any suitable means but preferably by clips o which are so shaped as to straddle both the vertical part of the rib and also the slat on each side thereof and which are fixed by means of split pins or the like passing through holes p in the clips and said vertical part of the rib. By this construction straight slats can be used which can be bent to conform to the bow shape of the building and the recesses have considerable depth for a purpose that will presently be made clear.

To the foot ends of the ribs a are riveted either angle-iron brackets r^1 as shown in Figs. 5, 6 & 7 or plates r as shown in Fig. 8. The former is the preferred

construction as by making these brackets (r^1) similar to the brackets a^1 all the elements of the ribs are alike and therefore become interchangeable. In the former construction the brackets r^1 are attached to cleats b^1 fixed to the sides of the bearers b, and in the latter construction the plates r are attached to the inner sides of the bearers b by coach screws, the ends of the ribs a in each case taking a bearing on the upper sides of the bearers b.

The joints of the purlins e, where such are necessary, are made to coincide with the ribs as shown in Figs. 3 & 4, and said purlins - at the joints or otherwise - are fixed to said ribs by means of lock bolts such as y which engage holes in the ribs and after passing through the purlins are drawn up by means of nuts. For convenience in construction the lock bolts on adjacent ribs are arranged on opposite sides of their respective ribs.

The boards or the like forming the lining g, which are preferably tongued and grooved, are cut in suitable lengths to fit in between any two adjacent ribs and are held in place simply by engagement with the recesses r in connection with said ribs. These boards or sheets may be of wood or any other suitable material or composition and of any desired thickness as being subject to no swelling there is no destructive action in erection or dismantling. Owing to the depths of the recesses into which the boards fit, longitudinal shrinkage within limits is of no matter, while transverse shrinkage can be taken up by packing

the boards or sheets tighter and if necessary inserting another length of the necessary width.

As a modification, the section of the ribs a may be such as will provide the necessary side recesses n. Such a section is shown in Fig.12. The corrugated iron sheets forming the outer wall or roof f are secured to the purlins e by means of dowel bolt bolts similar to those shown in Figs. 3,4 & 6.

The panels h forming the ends of the building are constructed in any suitable manner, that illustrated being a convenient one. This consists in filling in the panels with vertically arranged boards g or the inside and with transversely or horizontally arranged boards g^1 on the outside. Alternatively the vertical joints of the boards g may be covered by vertically arranged fillets. The panels are bolted to the end ribs a, to the vertical struts k, and to the end floor joists c by hook bolts z. By providing ventilators ll in the panels between the inner and outer walls free circulation of air can be obtained throughout the longitudinally arranged air spaces.

The floor joists c are preferably made in two lengths and rest at their outer ends on the bearers b supporting the ribs a and at their inner ends on a central bearer b^2, said joists being kept in their correct position on the bearers b and b^2 by means of dowel pins carried by said bearers and engaging holes in the joists. The flooring, which is grooved and tongued, is preferably made up in suitably sized panels.

I claim:-

1. In a portable building of the bow or semi-circular type in which the roof extends to the floor, a frame comprising a series of bow or semi-circular shaped ribs each comprising three or more similar elements, a plurality of exterior purlins longitudinally arranged on and fixed to said ribs, and a plurality of metal sheets fixed to said purlins.

2. In a portable building of the bow or semi-circular type in which the roof extends to the floor, a frame comprising a series of bow or semi-circular shaped ribs each comprising three or more similar elements, a series of exterior purlins longitudinally arranged on and fixed to said ribs, each of said purlins comprising a plurality of legs the joints of which coincide with the intersection of the purlins with the ribs, and a series of corrugated iron sheets fixed to said purlins.

3. In a portable building of the bow or semi-circular type in which the roof extends to the floor, the combination of a series of sectional bow-shaped or semi-circular shaped ribs each comprising three or more similar elements, means adapted to receive the ends of said bow-shaped ribs, means for securing said ribs to said bearers, longitudinally arranged purlins carried by the bow-shaped ribs, an outer covering of corrugated iron sheets fixed on said purlins, a lining composed of a plurality of boards or sheets arranged longitudinally between the ribs and end pieces each composed of a series of panels carrying the door, the windows, and the ventilators.

4. In a portable building of the semi-circular or bow type in which the roof extends to the floor, and in which the outer covering or roof and the inner lining or wall are carried by a plurality of curved ribs of a T-section, slats of wood arranged in parallel relation to the horizontal members of said ribs, clips which straddl both the vertical members of the ribs and the slats for the purpose of holding said slats in position, pins for securing said clips to the vertical members of said ribs, and a series of boards or the like arranged lengthwise between said ribs and fitting in the recesses formed by and between the ribs and the slats fixed thereto.

5. In a portable building of the semi-circular or bow type, in which the roof extends to the floor, the combination of a series of bow or semi-circular shaped T-iron ribs each formed of three or more pieces of similar length, bearers on which said ribs are mounted, angle-iron brackets carried by said lengths for the purpose of fixing same together and of fixing the end members to the bearers, purlins fixed longitudinally on said ribs, metallic covering sheets fixed to said purlins, or inner lining comprising a series of boards or sheets fitting in recesses formed by slats fixed on and in relation to the vertical members of the T-iron ribs, and end pieces each comprising a series of panels which carry or form the doors, the windows, and the ventilators.

6. In a portable building of the bow or semi-circular type in which the roof extends to the floor, the combination of a series of bow or semi-circular shaped T-iron ribs each formed of three or more pieces of similar length, ¶¶ bearers on which said ribs are mounted, ¶¶ angle-iron brackets carried by said bearers for the purpose of fixing same together and of fixing the end members to the bearers, ¶¶ joists carried by said bearers, ¶¶ a floor composed of a series of panels carried by said joists, ¶¶ purlins fixed longitudinally on said ribs, ¶¶ metallic covering sheets fixed to said purlins, ¶¶ an inner lining comprising a series of boards or the like fitting in recesses formed by plate fixed on and in relation to the vertical members of the T-iron ribs, and ¶¶ end pieces each comprising a series of panels which carry or form the doors, the windows and the ventilators.

7. The combination in a portable building of a series of bow or semi-circular shaped ribs a each formed of three or more similar sections, ¶¶ angle-iron brackets a^1 by which the sections of the ribs are fixed together, ¶¶ bearers b on which said ribs are fixed, ¶¶ angle-iron brackets c by which the ribs are fixed to the bearers, ¶¶ joists d carried by said bearers, ¶¶ a floor composed of a series of panels carried by said joists, ¶¶ purlins e longitudinally arranged on said ribs, ¶¶ metallic covering sheets f fixed to said purlins, ¶¶ bolt bolts g fixing the purlins to the ribs and the covering sheets to the purlins, ¶¶ an inner lining h comprising a series of boards or sheets fitting in recesses i formed by or in conjunction with the ribs a,

and one piece each comprising a series of panels
in which entry or form the door and the window or windows.

IN TESTIMONY WHEREOF I have signed my name this 14th
day of June 1914. London, England.

Witnesses:-

: 12

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Fig. 1.

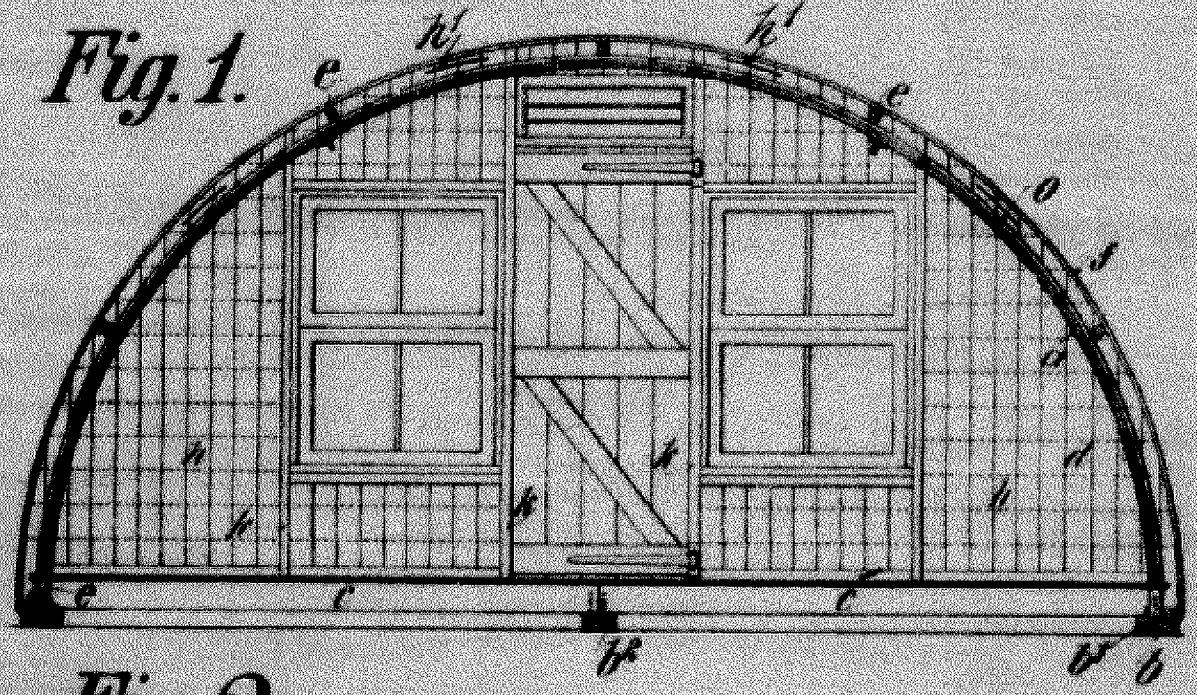
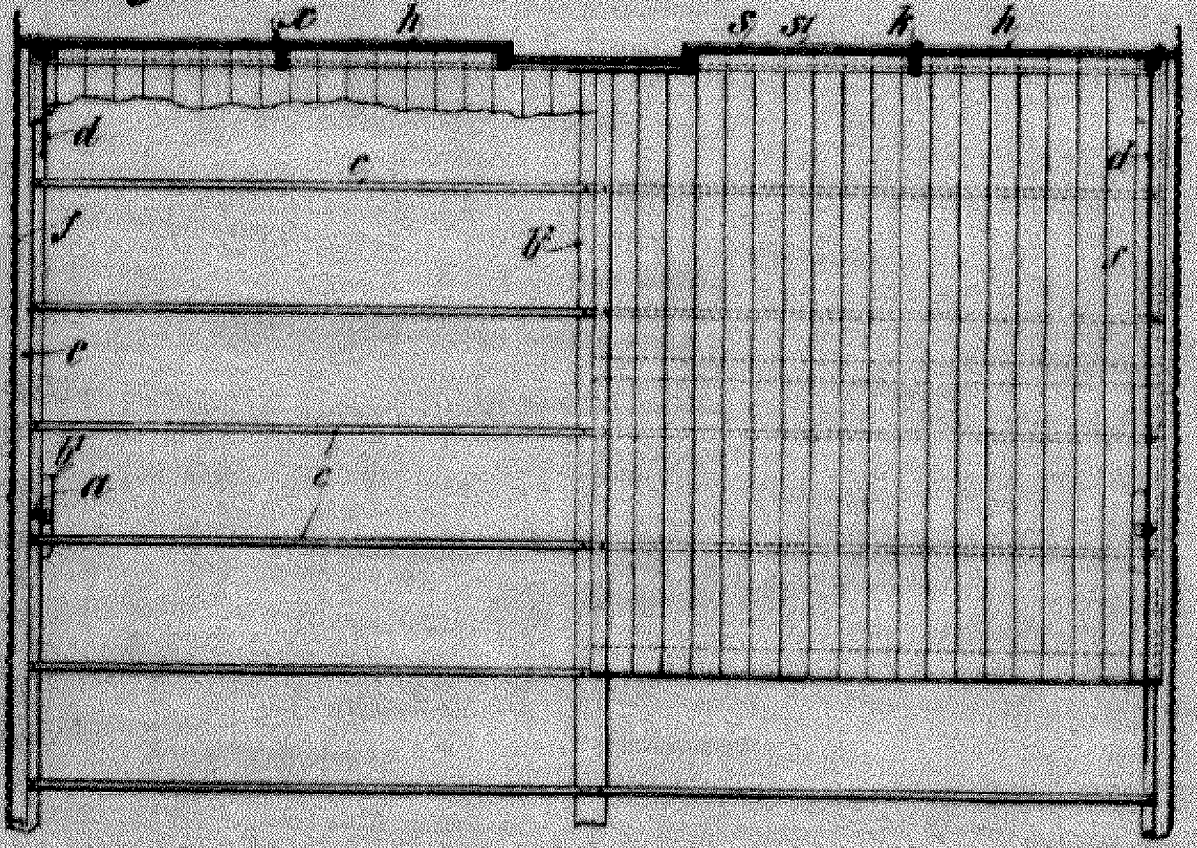


Fig. 2.



P. N. Nissen
Inventor

Certified to be the Drawings referred to in the specification hereunto annexed.

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Fig. 3.

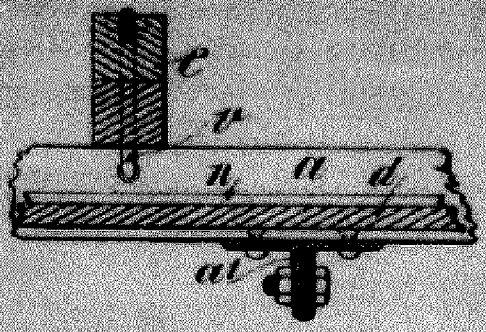

Fig. 4.

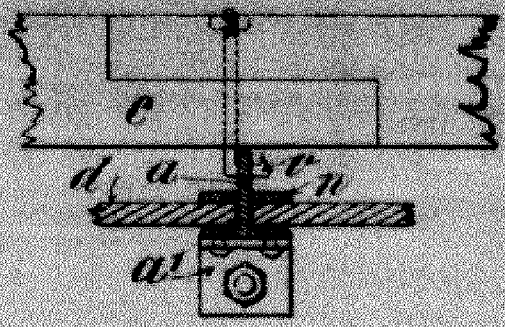

Fig. 5.

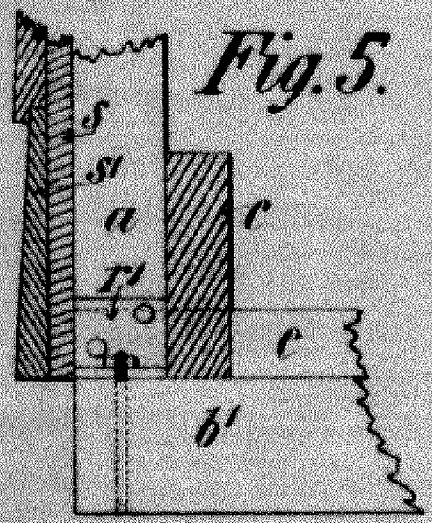

Fig. 6.

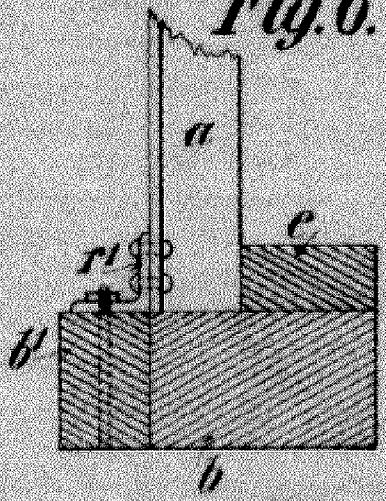

Fig. 8.

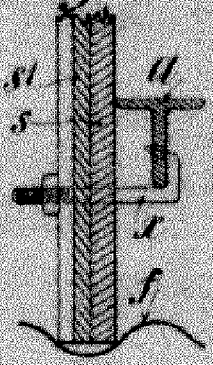

Fig. 7.

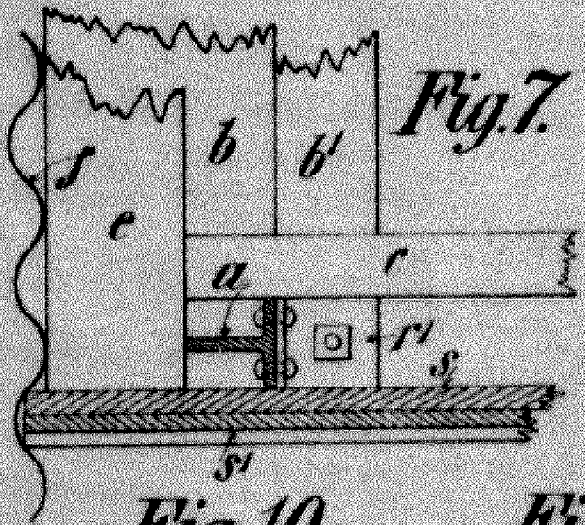

Fig. 9.

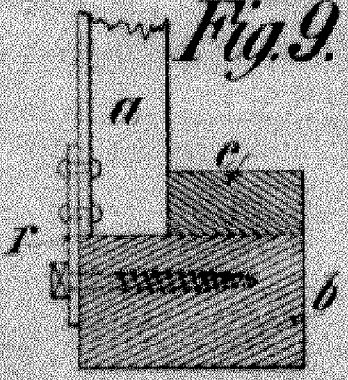

Fig. 10.

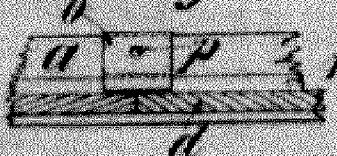

Fig. 11.

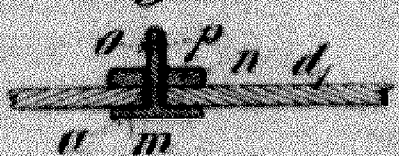

Fig. 12.

Certified to be the Drawings referred to in the specification herewith annexed

Daisy Ballard

London 15 June 1917

Charles James Jones

Clerk of 70 Chancery Lane London