J. O. MADISON.

TRUSSED SHEET CONSTRUCTION.

APPLICATION FILED JULY 10, 1918.

1,302,822. Patented May 6, 1919.

Fig. 1

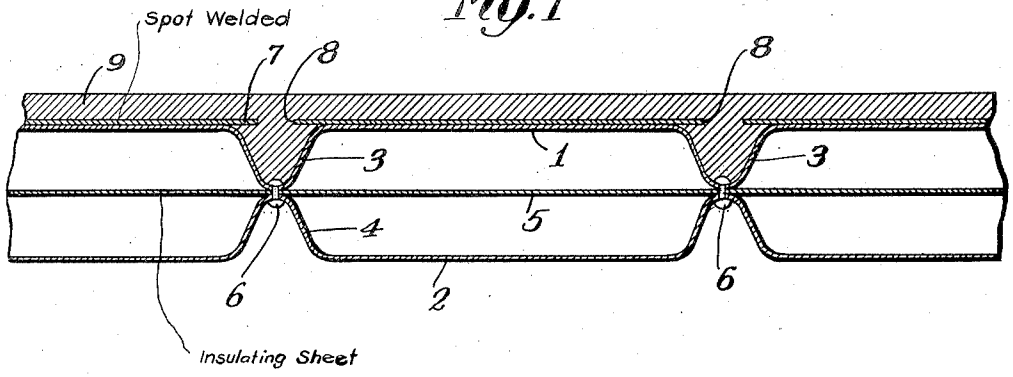


Fig. 2

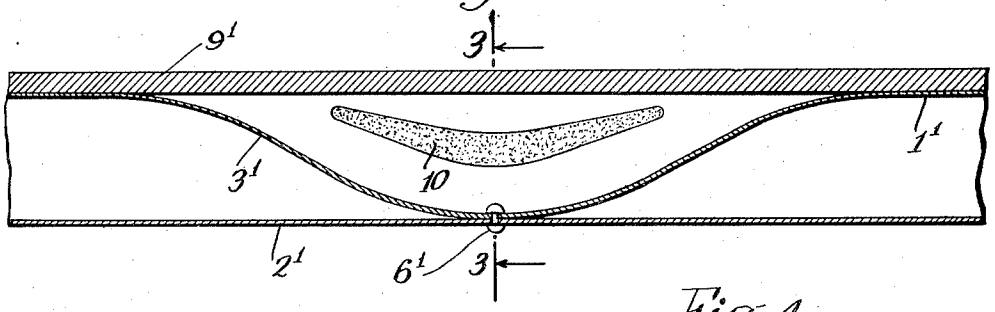


Fig. 3.

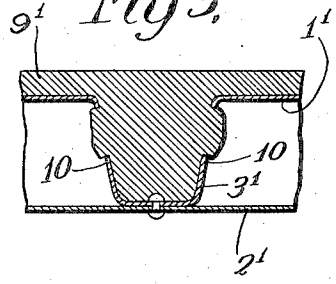
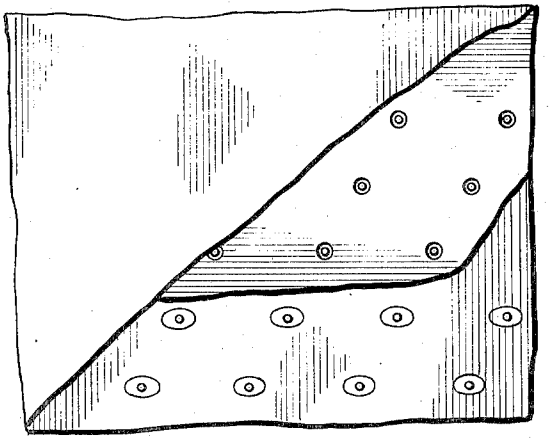


Fig. 4.



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TRUSSED-SHEET CONSTRUCTION.

1,302,822. Specification of Letters Patent. Patented May 6, 1919.

Application filed July 10, 1918. Serial No. 244,145.

To all whom it may concern:

Be it known that I, JOHN O. MADISON, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Trussed-Sheet Construction, of which the following is a specification.

My invention relates to improvements in trussed sheet construction adapted for use in the construction of walls, partitions, flooring, ceilings and other structural purposes in buildings. My present invention covers certain modifications and specific embodiments of the general invention disclosed in my application Serial No. 106,823, filed June 30, 1916, for trussed sheet building material.

The application referred to describes a construction embodying a pair of sheets, preferably of steel, which constitute the outer chord members of the trussed construction and which are rigidly connected together at certain intervals by intermediate web members composed of integral projections or depressions formed on one or both sheets and separated from each other laterally and longitudinally, these projections or depressions being of a depth many times the thickness of the sheet so as to produce a strong trussing effect. My present improvements relate to details of construction, including a construction in which a layer of insulating material is secured between the inner ends of corresponding depressions formed on the two sheets of the structure. My invention also includes a means for stiffening such a structure and at the same time forming anchorage for a layer of cement or other plastic material thereon, this comprising a reinforcing plate secured on one of the sheets of the trussed structure with openings through the reinforcing plate registering with the depressions in the underlying sheet, these openings, however, being of less extent than the adjacent portions of the depressions, so that the portions of the plate overlapping the depressions will form anchorages for the plastic material positioned on the sheet and plate. Another feature of the present invention consists in a manner of increasing the depth of the depressions formed in the sheets by slitting the metal at the sides of the depressions in a manner to be described, whereby steel or other metal of poor quality may be more readily pressed to form depressions of considerable depth, the openings thus formed also being of use as constituting anchorages for plastic material.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings forming part of this application and illustrating certain features of my invention. In the drawings, Figure 1 represents a sectional view of a trussed sheet construction provided with an interposed insulating sheet and also with a reinforcing and plastic-anchoring plate, Fig. 2 is an enlarged partial section through a trussed structure in which the depressions are slit for the purpose of increasing the depth thereof, Fig. 3 is a cross-section taken on line 3—3 of Fig. 2, and Fig. 4 is a top plan view, partially broken away, of the construction shown in Fig. 1.

Referring to the construction shown in Fig. 1, a pair of metal sheets 1 and 2, preferably of steel, constitute the outer chord members of the trussed structure and are spaced apart in a substantially parallel relation by intermediate web members which are formed integral with said sheets. The web members of the truss take the form of deep depressions which may be formed as by pressing, rolling or molding. In the construction illustrated in Fig. 1, both sheets are provided with such depressions shown at 3 and 4. These depressions are of a depth many times the thickness of the sheets 1 and 2 for the purpose of obtaining a strong truss-like structure.

Sheets 1 and 2 are secured together through the inner ends or apices of the depressions 3 and 4, with a sheet or layer 5 of heat insulating or other material interposed between the adjacent portions of the depressions. Layer 5 may be of any suit-

able material, such, for example, as tar paper, provided with a flint coating. Sheets 1 and 2 are rigidly secured together as by means of rivets 6, 6, which extend through the apices of the alined depressions 3 and 4, together with the interposed insulating material 5. It will be understood that the depressions 3, 4, are spaced apart laterally and longitudinally such distances as may readily be calculated to enable the structure to withstand the stresses to which it is to be subjected, the depressions preferably being arranged in staggered relation to each other.

When such a structure either with or without the interposed insulating sheet 5 is to be provided with plastic material, such as concrete, on one or both faces of the trussed structure, means for anchoring the plastic material should be provided. This may take the form of the reinforcing plate 7 shown in Fig. 1, which may be secured, as by spot-welding, to the outer surface of a sheet which is to be covered with plastic material. Plate 7 is provided with openings 8 therethrough which aline with the depressions 3, or some of the same, but are of less areas than the adjacent portions of the corresponding depressions. That is to say, the portions of the plate 7 surrounding the openings 8 overlap the downwardly or upwardly slanting walls of the depressions. Plastic material 9, such as concrete, being positioned upon sheet 1 and plate 7 and filling the depressions 3 will be securely anchored in position by the portions of plate 7 extending partway over the depressions, as is indicated in Fig. 1, the plate 7 having an additional function as a reinforcing means for the trussed structure.

In Figs. 2 and 3 is illustrated a method of obtaining an extreme depth of depression in the case of a trussed sheet structure, such as that shown in Fig. 1 or in the drawings forming part of my application Serial No. 106,823 referred to above. As is shown in Fig. 2, a sheet 1′ having depressions, such as that illustrated at 3′, forms one of the chord members of the truss and is rigidly secured to a sheet 2′ forming the other chord member of the truss, which sheet may be plane, as shown, or may be provided with depressions in the same manner as the under sheet shown in Fig. 1. The sheets are secured together at the apices of the depressions by suitable means, such as rivets, one of which is shown at 6′, extending through sheet 2′ and the apex portion of depression 3′ of sheet 1′.

In the construction illustrated, each depression, such as 3′, is provided with slits 10, 10, running transversely of the center line or depth of the depression on each side thereof. This construction is particularly adapted for obtaining extreme depth of depressions in pressing sheets of a cheap grade of steel or other metal, which is not adapted, because of its qualities, to be pressed to a desired depth by ordinary methods. It is obvious that slitting the metal in the manner shown permits a greater depth of depression to be pressed than would be obtained with the same pressure if no such slits were provided, and the stresses in the metal are correspondingly less. The sheet 1′ being covered with a layer of plastic material 9′, such as concrete, which fills the various depressions, it will also be noted that the plastic material will be forced somewhat through the slits 10 to form a suitable anchorage for the plastic material.

What I claim is:—

1. In a trussed sheet structure, adapted to withstand heavy loads or stresses, the combination of a sheet constituting a chord member of the truss and formed with permanent integral depressions of a depth many times the thickness of the sheet, sufficient to produce a strong trussing effect, said depressions being suitably spaced laterally and longitudinally and constituting web members, another sheet rigidly secured to the apices of said depressions and constituting an opposite chord member of the truss, a reinforcing plate secured to said first sheet, extending over said depressions with openings therethrough in line with said depressions, of less extent than the adjacent portions of said depressions, and a layer of plastic material applied to said first sheet and plate and filling said depressions, said material being anchored to said sheet by the portions of said plate overlapping said depressions.

2. In a trussed sheet structure, adapted to withstand heavy loads or stresses, the combination of two sheets constituting the opposite chord members of the truss, each formed with permanent integral depressions of a depth many times the thickness of the sheet, sufficient to produce a strong trussing effect, said depressions being suitably spaced laterally and longitudinally, and a layer of insulating material, said depressions being rigidly secured together at their inner ends with said insulating material interposed between them and secured thereto, said depressions constituting the web members of the truss.

3. In a trussed sheet structure, adapted to withstand heavy loads or stresses, the combination of a metal sheet constituting a chord member of the truss and formed with permanent integral depressions of a depth many times the thickness of the sheet, sufficient to produce a strong trussing effect, said de-

pressions being suitably spaced laterally and longitudinally and constituting web members, another metal sheet rigidly secured to the apices of said depressions and constituting an opposite chord member of the truss, said depressions being slit through opposite sides thereof transversely of the depth thereof for substantial distances, and said slits widened by the pressure employed in the formation of said depressions.

This specification signed and witnessed this 29th day of June, 1918.

JOHN O. MADISON.

Witnesses:
DYER SMITH,
M. S. GANG.