Jan. 19, 1926. 1,570,311

J. T. MAGUIRE

METALLIC ROOF FOR TANKS

Filed May 19, 1924

Fig. 1.

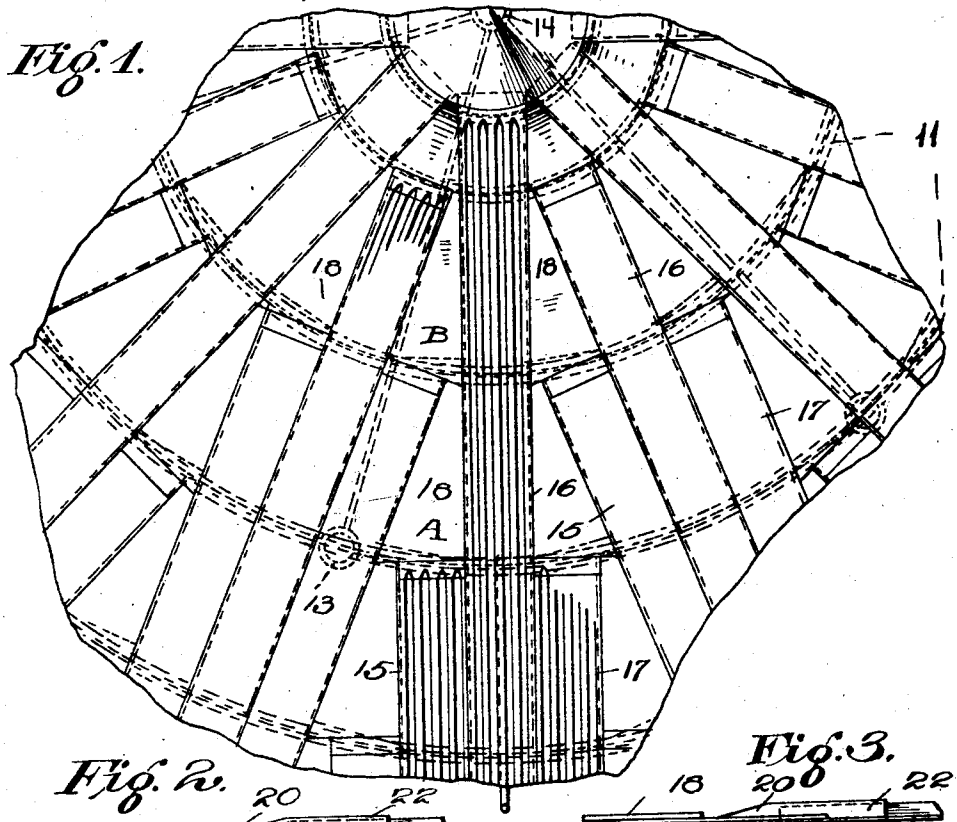


Fig. 2.

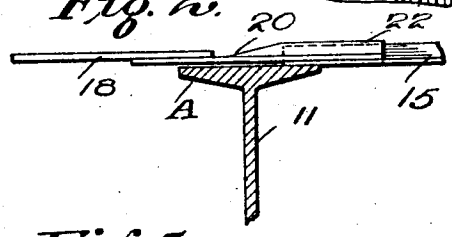


Fig. 3.

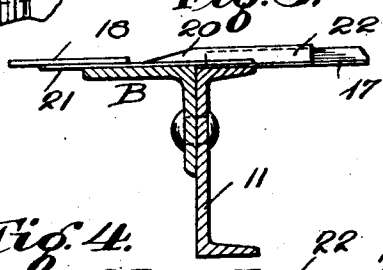


Fig. 5.

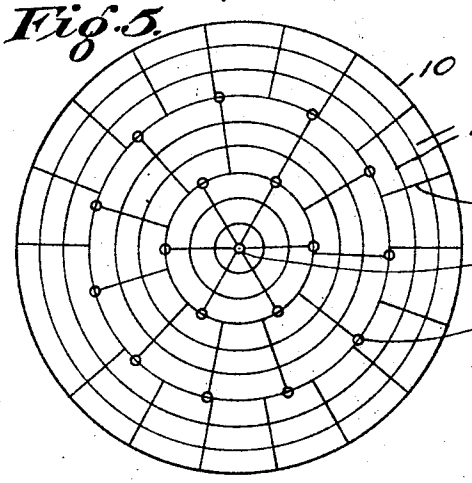
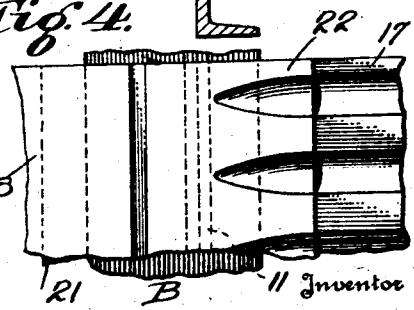


Fig. 4.



Inventor

Joseph T. Maguire

By T. J. Blair

Attorney

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UNITED STATES PATENT OFFICE.

JOSEPH T. MAGUIRE, OF CHEVY CHASE, MARYLAND.

METALLIC ROOF FOR TANKS.

Application filed May 19, 1924. Serial No. 714,251.

To all whom it may concern:

Be it known that I, JOSEPH T. MAGUIRE, a citizen of the United States, residing at Chevy Chase, Maryland, have invented new and useful Improvements in Metallic Roofs for Tanks, of which the following is a specification.

This invention relates to improvements in roofing and more particularly to metallic roofing for covering circular buildings such as oil tanks, silos and the like.

In order that a clearer perception of the present invention may be had it is to be noted that heretofore for the most part metallic roofing for circular buildings has been made of relatively flat sheet metal supported from either radially disposed or concentrically disposed girders.

There has been a serious objection to this due to the expense and weight of the material, for it is a well understood principle that flat sheet metal must be made materially thicker to withstand the weights and strains imposed upon it than would corrugated metal. Consequently it has been attempted to use corrugated sheet metal thereby to reduce the weight and expense but great difficulty has been experienced in obtaining the desired material for the reasons that the plates are of the triangular or sector shape and the corrugations cannot be made therein along radial lines by any present known machinery and, further, where it has been attempted to do so it has been impossible to properly interfit the adjacent sections to prevent leakage.

It is, therefore, one of the present objects of the invention to provide an improved metallic roofing of the above general character which shall be light thereby to reduce the expense yet at the same time sufficiently strong to withstand the weights, pressures, stresses and strains to which the roof may be subjected.

A further object is to provide a roofing of the above character made in sections that will permit ready interfitting of the various parts in a weather-tight manner.

A further object is to provide an improved arrangement of beam supports and girders whereby the moving plates may be conveniently attached and positioned and secured to each other to accomplish the desired results.

Other objects will be in part obvious and in part hereinafter pointed out in connection with the accompanying sheet of drawings illustrating one of various possible embodiments of the invention and wherein several reference characters denote corresponding elements in the various views.

In these drawings, Figure 1 is a partial plan view of the roof.

Figure 2 is a detailed sectional view adjacent the part A of the roof, Figure 1.

Figure 3 is a detail sectional view adjacent the part B, Figure 1.

Figure 4 is a detail plan view of the part shown in Figure 3.

Figure 5 is a diagrammatic plan view of the roof of the tank showing the arrangement of girders and supports.

Referring now to the drawing in detail there is shown in Figure 5 a plan view of the under tank roof which comprises a main outer shell or side plating wall 10 having concentrically disposed with respect thereto a series of circular girders 11, these circular girders being connected by means of radial beams 12 supported at intervals by means of uprights 13 symmetrically arranged about a central post 14.

The roofing is composed of a series of plates as shown in Figure 1, each group comprising three sections indicated at 15, 16 and 17, the middle section 16 being materially longer than the other sections whereby the plates may be applied to the roofing girders in the intervening manner clearly indicated in Figure 1.

Each of these sections is grooved or corrugated longitudinally thereby greatly strengthening each plate and permitting materially thinner constructions. Such an arrangement has two obvious advantages, namely, an increase in strength with a reduction in weight and also material decrease in the cost of manufacture and installation.

This arrangement, however, it will be seen, provides a plurality of open triangular spaces which must be covered by plates 18 in order to render the roof weather tight. There is, therefore, provided flat substantially triangular sheet metal members 18 which may be suitably attached under the main corrugated plates 16 at the sides and overlapping a member 20 as shown more clearly in Figure 2, which member 20 in turn is shaped to closely overlap the next lower adjacent corrugated sections 15 or 17

as the case may be as well as the upper edge of plate 18 therebelow. This member 20 has a relatively flat portion 21 adapted to fit under the plate 18 at its top edge like a shingle on a roof and a corrugated portion 22 integrally formed therewith and adapted to coact with the corrugations of the plate 17 therebelow.

In this manner the entire roofing elements may be easily and quickly assembled and secured one with another to provide a strong substantial and durable roofing which at the same time will be weather tight. The grooves in the main plates will, of course, carry off the water rapidly and efficiently and such rain as may fall on the triangular plates 18 will drain down onto the special connecting part 20 and thence to the corrugated section immediately therebelow.

It will thus be seen that the present invention provides a simple and practical roofing particularly adapted to accomplish, among others, all of the objects and advantages herein set forth.

It will further be noted that the present invention may be used with corrugated metal plates, corrugated asbestos sheets or any similar material and it will be further noted that the connections between adjacent plates may be made with rivets or clinch rivets or by welding or soldering or by any other method by means of which one metal plate may be securely attached to another metal plate.

What I claim is:—

1. In a roofing of the character described, in combination, main sections composed of a plurality of parts, each part being provided with a plurality of longitudinally disposed parallel corrugations, said sections being radially disposed about the roof and intervening plates adapted to close the openings between adjacent sections and means for draining the water to the corrugations of the next lower main section.

2. In a roofing of the character described, in combination, a plurality of main sections radially disposed, each section comprising three portions provided with longitudinal parallel grooves, the central portion being longer than the adjacent portion whereby when the parts are assembled triangular spaces will be left therebetween and means including flat plates adapted to close said triangular spaces and corrugated portions adapted to interfit with the corrugations of the section immediately therebelow.

3. In a roofing of the character described, in combination, a plurality of supports including concentrically disposed girders, a series of plates radially disposed with respect to the center of the roof and supported from said girders, each plate comprising three sections, the central one of which is longer than the adjacent ones and each section being corrugated longitudinally in parallel grooves.

4. In a roofing of the character described, in combination, a plurality of supports including concentrically disposed girders, a series of plates having parallel longitudinal grooves and radially disposed with respect to the center of the roof and supported from said girders, each plate comprising three or more portions, the central one of which is longer than the adjacent ones and means for closing the triangular spaces formed between said radially disposed plates.

5. In a roofing of the character described, in combination, a plurality of supports including concentrically disposed girders, a series of plates having parallel longitudinal grooves and radially disposed with respect to the center of the roof and supported from said girders, each plate comprising three portions, the central one of which is longer than the adjacent ones, means for closing the triangular spaces formed between said radially disposed plates, said means including plates having a flat portion and a corrugated portion.

6. In a roofing of the character described, in combination, a plurality of supports including concentrically disposed girders, a series of corrugated plates radially disposed with respect to the center of the roof and supported from said girders, each plate comprising three sections, the central one of which is longer than the adjacent ones, means for closing the triangular spaces formed between said radially disposed plates, said means including a flat plate adapted to close said triangular opening and a member supported on a girder having a portion fitting below said flat plate and a corrugated portion coacting with the corrugations of the next section therebelow.

Signed at Washington, District of Columbia, this 29th day of March, 1924.

JOSEPH T. MAGUIRE.