Aug. 22, 1933. L. H. LEONARD ET AL 1,923,544

ADJUSTABLE GUSSET STRUCTURE

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FIG. 1

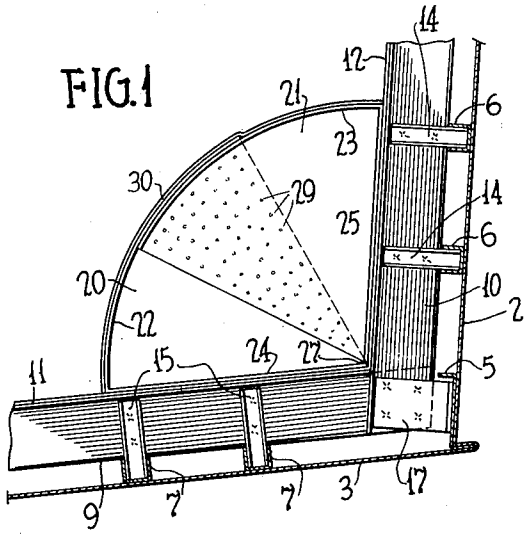


FIG. 2

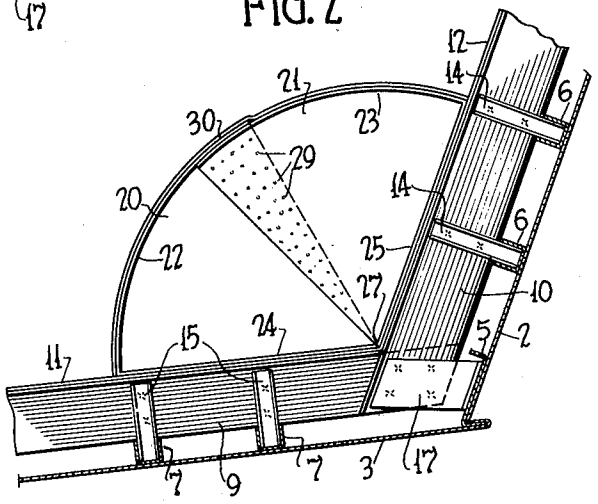
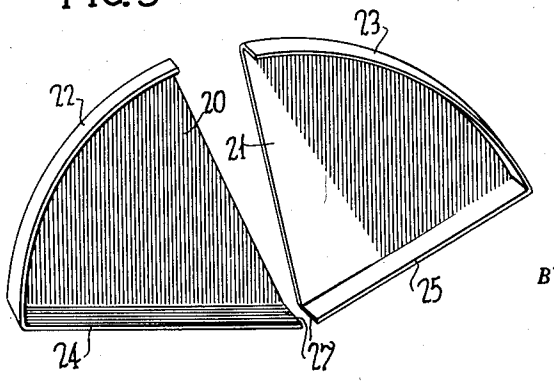


FIG. 3



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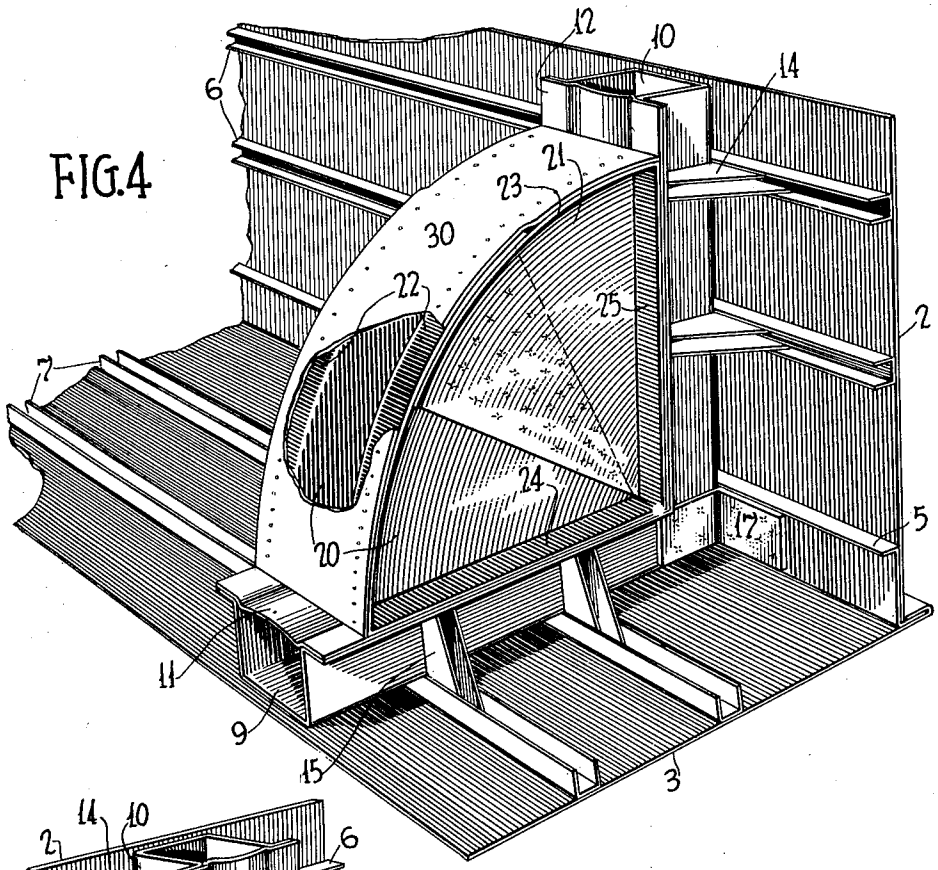
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FIG.4



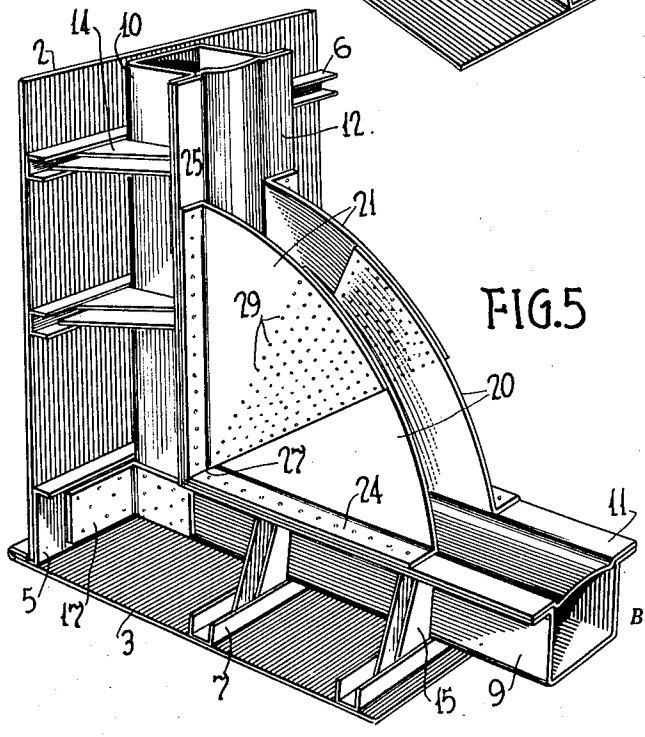


FIG.5

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ADJUSTABLE GUSSET STRUCTURE

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Application April 14, 1932. Serial No. 605,208

7 Claims. (Cl. 9—6)

The invention relates to gussets and particularly to sheet metal gussets or gussets for reinforcing sheet-metal structures and it has for one of its objects to provide a gusset that shall be adjustable or extensible to fit walls of various angular relations.

As particularly well exemplified by boat hulls, the side and bottom walls thereof may have various angular relations in the same or different boats.

Thus, whenever, a gusset is employed along the hull, its sides, co-operating with the side and bottom of the boat, must conform in angular relation to the particular angular relation of the side and bottom walls of the boat at the position of the gusset. So far as we are aware, this situation has heretofore been met by providing separate gussets for each wall angle, or it may have been met by various compromise or makeshift structures.

To simplify, economize and facilitate manufacture and to provide a simple single gusset structure that may be employed between walls of any practical angle, we provide a gusset including side-by-side engaging web parts which so overlap as to remain in overlapping relation within a practical range of adjustment of the wall or angle sides. These sides, in any relation, provide adequate overlapping area for laterally spot welding the same together.

An extension of the idea includes the provision of flanges on the hypothenuse or angle-brace side of the web plates, which flanges also overlap for spot welding to each other and to a brace extending transversely between the webs.

Fig. 1 of the accompanying drawings, shows a transverse or cross section of a portion of a boat or pontoon, at the meeting of a side wall and the bottom wall thereof, together with a gusset of our invention, in side elevation.

Fig. 2 is a view similar to Fig. 1 showing the side and bottom walls of the boat at different angles and the gusset of Fig. 1, adjusted to the new angle,

Fig. 3 shows the gusset parts separated and in perspective,

Fig. 4 is a perspective view, showing the parts of Figs. 1, 2 and 3 to better advantage, and

Fig. 5 is a view, similar to Fig. 4, of a modified form of the invention.

Referring to Figs. 1 to 4, inclusive, the parts being preferably constructed of sheet metal, comprise a side wall 2, a bottom wall 3, a longitudinal edge stringer 5 of Z-section, longitudinal side stringers 6 of channel section, longitudinal bottom stringers 7 of channel section, and a transverse frame of box section.

The transverse frame comprises transverse and upright channel sections 9 and 10 that are mounted on the stringers 6 and 7 and cover plates 11 and 12 respectively.

The transverse frame is braced by small gussets 14, not of the present invention, in the side stringers 6, gussets 15, in the bottom stringers 7 and angle pieces 17 between the frame and the side 2.

The gusset of the invention comprises half portions including angle-brace or web portions 20 and 21 that are preferably constructed as segments of a disc having transverse flanges 22 and 23 along the arcuate edges thereof and transverse flanges 24 and 25 along the remote or furthermost radial edges thereof:

The half portions are constructed to so interfit that the web portions 20 and 21 are in side by side engagement and one of the flange portions 22 and 23 overlies the other in engagement therewith.

The half portions are shown, in Fig. 3, in position just before they are brought together to place the apices 27 thereof in substantially coincident relation and to interfit the webs 20 and 21 and the flanges 22 and 23 for sliding parallel movement about the then common apex 27.

With the halves thus brought together, they are placed in position, as indicated in Fig. 1, and adjusted along the web or brace section of the composite gusset until the flanges 24 and 25 conform to the sides of the angle between the walls 3 and 2 against the covers 11 and 12 of the transverse box frame to which they are spot welded. In this position, the webs 20 and 21 are preferably spot welded, as indicated at position 29, and the overlapping portion of the flanges 22 and 23 may be similarly welded.

A plate 30 may then be cut to proper length and placed along the flanges 22 and 23, between the remote ends thereof and across the overlap.

Fig. 2, differs from Fig. 1 only in the degree of the angle between the side and bottom walls 2 and 3, showing the gusset adjusted to this increased angle, with the webs and flanges still overlapping and the plate 30 of increased arcuate dimension.

As indicated in Fig. 4, there are two gussets, as above described, disposed in laterally-spaced relation, with the plate 30 functioning as a lateral brace or as a cover to render the resultant or composite gusset of box-like character.

In the form of the invention, illustrated in Fig. 5, in which corresponding parts are designated

by corresponding reference characters, the structure is substantially the same as that of Fig. 4, with the exception that the plate 30 and the flanges 22 and 23 are omitted to render the structure of less strength but to obtain the advantages of reduced weight and cost in service where the stronger and heavier gusset is not required.

The device is also particularly adapted to facilitate the joinder of its parts by spot welding which is the attaching means of probably the simplest, most economical and best form in the metal joining art.

While we have shown and described particular forms of the invention, changes may be effected therein, without departing from the spirit and scope thereof, as set forth in the appended claims.

We claim as our invention:

1. A gusset of substantially box-section including parts adapted for adjustably fitting the gusset between walls of various angular relations to each other.

2. A gusset comprising an angle brace including members having pivotal portions for turning movement in the direction of the brace to adjustably fit the gusset between walls of various angular relations to each other and to have said portions overlapping in the direction of the brace in any adjusted position.

3. A gusset comprising an angle brace including portions for movement in the direction of the brace to adjustably fit the gusset between walls of various angular relations to each other and to have said portions overlapping in the direction of the brace in any adjusted position, said portions also having transverse flanges for overlapping relation in said direction in any adjusted position.

4. A gusset comprising an angle brace including portions for movement in the direction of the brace to adjustably fit the gusset between walls of various angular relations to each other and to have said portions overlapping in the direction of the brace in any adjusted position, said portions also having transverse flanges for overlapping relation in said direction in any adjusted position, and a member for connecting attachment between said flanges.

5. A gusset comprising a web portion including a pair of sheet members substantially in the form of disc segments and adapted for parallel movement in adjacent overlapping side-by-side engagement about a center at the intersection of the radial edges thereof to adjust the angle between the remote radial edges thereof and to be secured together in adjusted position.

6. A gusset comprising a pair of laterally-spaced web portions each including a pair of sheet members substantially in the form of disc segments and adapted for parallel movement in adjacent overlapping side-by-side engagement about a center at the intersection of the radial edges thereof to adjust the angle between the remote radial edges thereof and to be secured together in adjusting position, and a plate for extension transversely between and along the arcuate edges of said web portions across said overlap.

7. In combination, intersecting walls of various angular relation therealong, and a plurality of gussets extending between, and secured to, the walls at spaced positions therealong, said gussets having substantially identical adjustably-related parts adjusted to fit the gussets to the walls in accordance with the particular angular relation of the walls at the positions of the several gussets.

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