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F. P. DICKOW

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RAFT GUSSET

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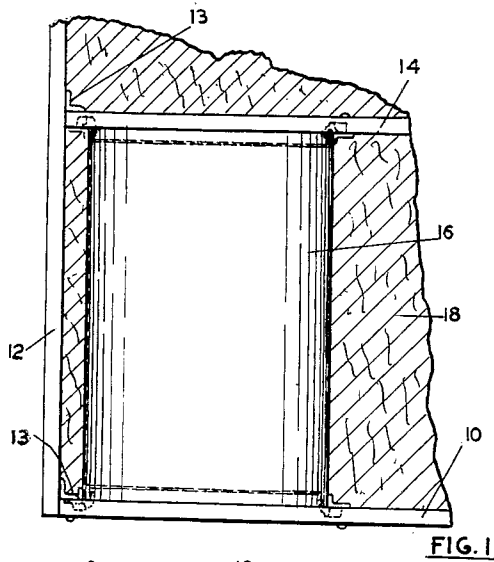


FIG. 1

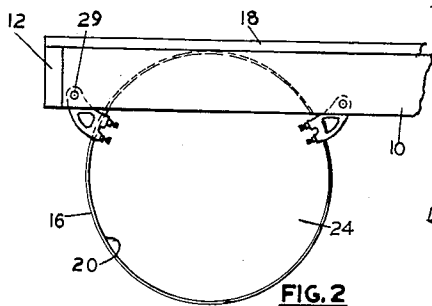


FIG. 2

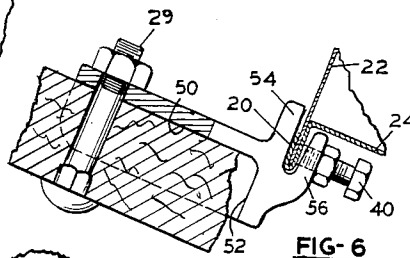


FIG. 6

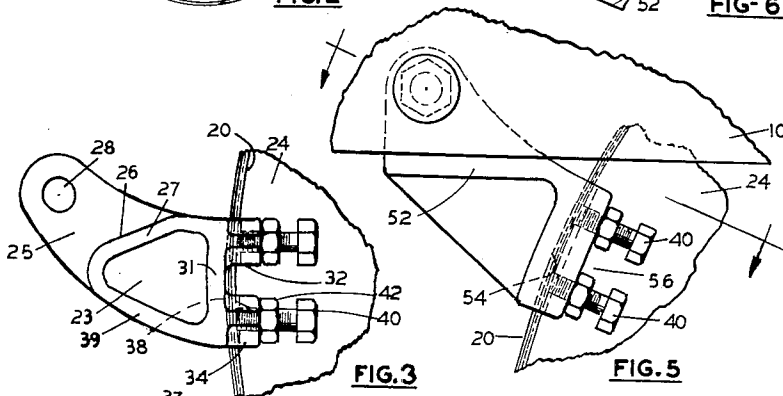


FIG. 3

FIG. 5

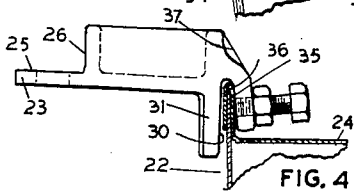


FIG. 4

INVENTOR.
FREDERICK P. DICKOW.

BY

F. P. Keiper

ATTORNEY

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RAFT GUSSET

Frederick P. Dickow, Auburn, N.Y., assignor to The Eastern Company, a corporation of Connecticut
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This invention relates to a gusset for securing drums having cylindrical end flanges to frame members of a raft or the like.

Oil drums, such as the 55 gallon type, are frequently employed as air chambers for floats or rafts. It has been a problem to fasten such drums in a permanent, secure manner to timbers or frame members, it being understood that in float applications, the drums and raft are subject to constant buffeting from the elements and the drums must remain airtight.

The present invention is directed to a gusset which may be cast of malleable iron or the like, and which is adapted to secure drums to frame members, such as 2" x 6", in nested position beneath the deck or flooring. The gussets are so formed as to grip the cylindrical end flanges of the drum, without piercing the drum, and are adapted to be attached in a firm manner to the raft frame members immediately adjacent the rim of the drums.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

FIGURE 1 is a fragmentary view of a raft corner from beneath showing the application of the gussets to the frame members and a drum;

FIGURE 2 is a fragmentary side elevational view of FIGURE 1;

FIGURE 3 is a side elevation of the gusset;

FIGURE 4 is a plan view of the gusset;

FIGURE 5 is an enlarged fragmentary side elevational view of one gusset of a modified form shown affixed to a raft frame member and drum end flange; and

FIGURE 6 is a fragmentary view, partly in section taken substantially on the line 4—4.

Referring to FIGURE 1 there is shown a corner of a raft, from beneath having a side frame member 10, and an end frame member 12 secured together in any suitable manner as by angle pieces 13, and an inside frame member 14 disposed parallel with the side frame member 10, and spaced therefrom by the length of an oil drum, such as 16. Suitable planking 18, diagonally or otherwise disposed forms a flooring or deck, immediately above the drum, as indicated in FIGURE 2. Common oil drums are approximately 23" in diameter, and the frame members may be standard 2" x 6" of suitable weather resistant timber. The ends of the drums have cylindrical flanges 20, which form the seam between the cylindrical body 22, and the end head 24.

In order to secure drums which are at least four in number, one in each corner of the raft, to the frame members, gussets having a plate portion 23, with a face 25 adapted to engage the side of a frame member is provided. The plate portion is provided with a right angle integral shoulder portion 27, the face 26 of which is adapted to engage the under-surface of a frame member. An aperture 28 for a bolt or lag screw 29 is provided.

Oppositely facing at one end is an arcuate shoulder portion 31 having a concave face 30 of a radius corresponding to the exterior cylindrical rim surface of a drum, and

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in practice, this radius may be 11½" for use with standard 55 gallon drums. The face 30 forms together with the ears 32 and 34, an arcuate recess 35 to receive the end flange of a drum, and the recess has a depth as at 36 reaching to the plane of the face 25. Each of the ears 32 and 34 are cast integral with the gusset, and are provided with a bracing web 37, and the ears are provided with threaded apertures 38 to receive a set screw 40, with preferably a locking nut 42. The shoulder portion 27, and the arcuate portion 31 are joined by an integral web 39.

As shown in FIGURE 2, the face 25 and shoulder face 26 snugly fit against the inside facing and bottom surfaces of the respective frame members 10 and 14, and are rigidly secured in position by a bolt 29. The end flanges 15 of the drum are seated in the arcuate recesses 35 of the gussets, and securely clamped by drawing up the set screws 40. In placing the gussets, four are first affixed to the drum ends, with the surfaces 26 all lying in a common plane, and thereafter the drum is located between 20 the frame members 10 and 14, and the gussets secured thereto as by the bolts 29. It will be seen that the drum is substantially tangential to the under surface of the deck structure, by reason of the selection of a proper relation between the center of the arcuate recess, and the face 26, 25 it being understood that the relationship will vary for gussets adapted to be employed with timbers and tanks of different dimensions from those hereinabove referred to for explanatory purposes. It will thus be seen that the plane 26 of the flange 27 bears a chordal relation to 30 the circle on which the arc of the recess 35 is formed, and the plane 26, when the gusset is applied to a frame member 10 is located a distance from the underside of the planking 18 by a distance approximating the width of the member 10, the plane 26 of the flange 27 when so 35 mounted is parallel with the underside of the planking 18, which is tangent to the rim of the drum.

In FIGURES 5 and 6 a similar but somewhat modified form of gusset is shown, wherein frame member faces 50 and 52 are provided together with an arcuate tank 40 engaging face 54, having a single clamping flange 56, forming an arcuate recess for the tank end flange, the flange 56 having set screws 40.

It will be seen that both modifications are readily capable of being cast, or forged, and in practice for economy and resistance to weather, may be preferably malleable iron castings.

By the use of four gussets, constituting two pairs of a right and left hand gusset for each drum, the drum is securely held between the frame members in a permanent 50 manner. If desired, the frame members may be spaced the same distance as the length of the drum, and the drum ends caused to snugly fit between the frame members. Should a drum require replacement, the gussets may be quickly loosened and reused to clamp a replacement drum.

While a single modification of the invention with a slight variation has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. An integral gusset for rigidly securing cylindrically 65 flanged drum ends in abutting relation to a platform frame member of rectangular section, comprising a plate portion having a planar surface at one end adapted to engage the side face of a frame member and having centrally thereof an upstanding flange having a surface facing said end at 70 right angles to said planar surface and adapted to engage the edge face of the frame member, said plate portion at its other end having an axially deep and radially narrow

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arcuate recess beyond said flange and entering from the opposite side of the plate from the flange side thereof, and of a depth extending to the plane of said planar surface, and means radially disposed in respect to the recess for clamping the cylindrical end rim of a drum in said recess, the plane of said flange surface bearing a chordal relation to the circle of the arc of said arcuate recess, by being disposed radially inward from a tangent of the circle of said arc extending parallel with said plane by the approximate width of the frame members for which the gusset is adapted.

2. An integral gusset for rigidly securing cylindrically flanged drum ends in abutting relation to a platform frame member of rectangular section, comprising a plate portion having a planar surface at one end adapted to engage the side face of a frame member and having centrally thereof an upstanding flange having a surface facing said end at right angles to said planar surface adapted to engage the edge face of the frame member, an attachment aperture through said plate portion at said planar surface end, said plate portion at its other end having an axially deep and radially narrow arcuate recess beyond said flange and entering from the opposite side of the plate, from the flange side thereof, and of a depth extending to the plane of said planar surface, and means radially disposed in respect to the recess for clamping the cylindrical end rim of a drum in said recess, said means comprising threaded set screws, the plane of said flange surface bearing a chordal relation to the circle of the arc of said arcuate recess, by being disposed radially inward from a tangent of the circle of said arc extending parallel with said plane by the approximate width of the frame members for which the gusset is adapted.

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3. An integral gusset for rigidly securing cylindrically flanged drum ends in abutting relation to a platform frame member comprising a plate portion at one end adapted on one side to engage the side face of a frame member, said plate portion at its other end having an axially deep and radially narrow arcuate recess entering from the opposite side of the plate and extending at least to the plane of the one side of the plate portion for clamping the cylindrical end rim of a drum abutting the side face of the frame member.

4. A float having a deck and parallel spaced frame members therebeneath having facing parallel surfaces, an air drum located beneath the deck and having an arcuate portion of its end flanges abutting and bearing directly against the facing surfaces of said spaced frame members and bearing tangentially against the underside of the deck, and a pair of integral gussets secured to each of the facing surfaces of said spaced frame members exterior of the air drum end flange, said gussets having an arcuate recess for embracing the rim of said drum entirely beyond the said arcuate portion of the end flange embraced between said frame members.

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