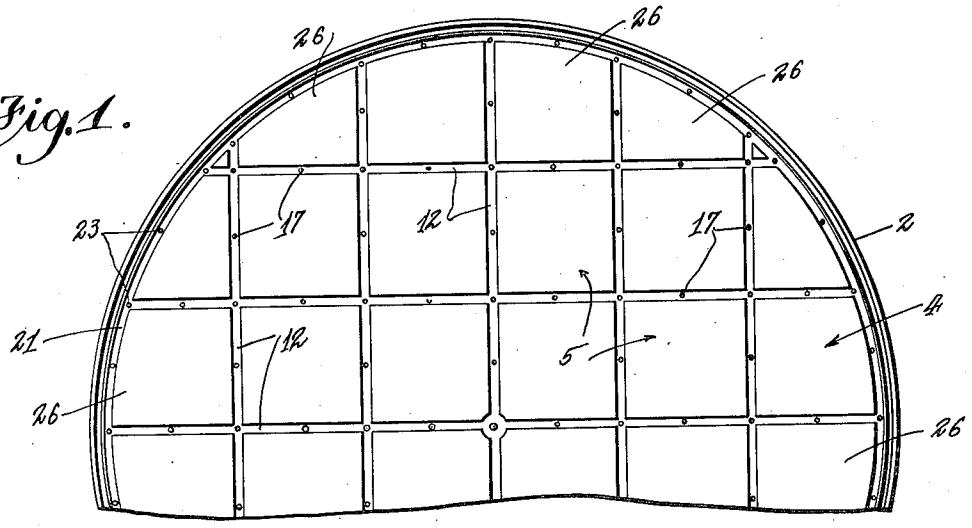
June 11, 1929. A. M. GRIFFIN 1,716,491

FLOATING DECK, GAS TIGHT TYPE

Filed July 13, 1927 2 Sheets-Sheet 1

Fig. 1.



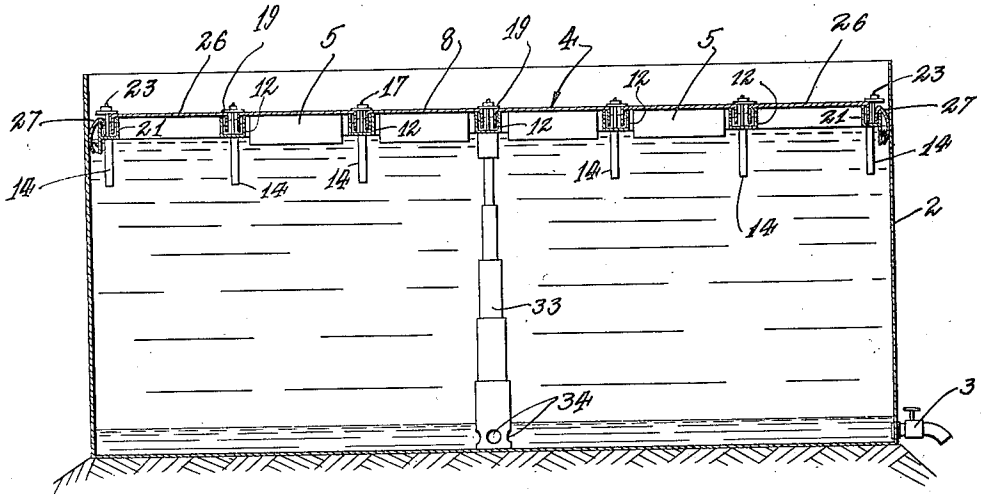


Fig. 2.

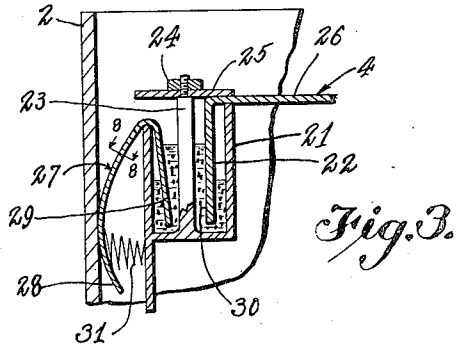


Fig. 3.

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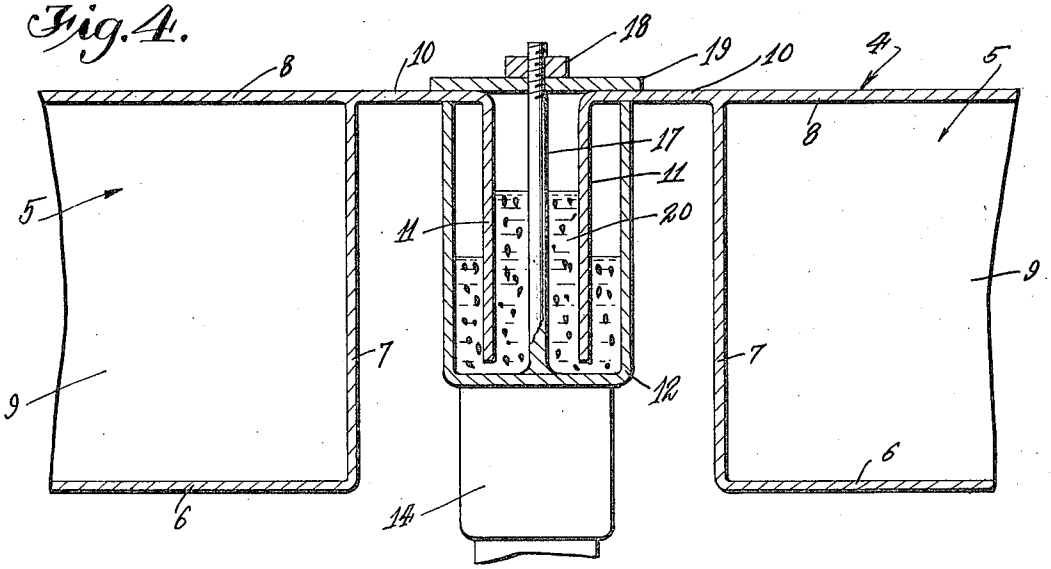
By Lyon & Lyon Attorneys

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FLOATING DECK, GAS TIGHT TYPE

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Fig. 4.



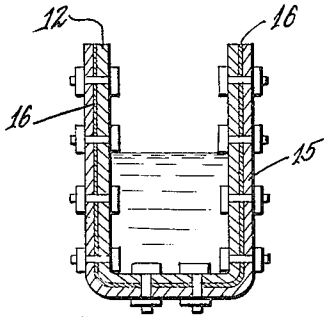


Fig. 5.

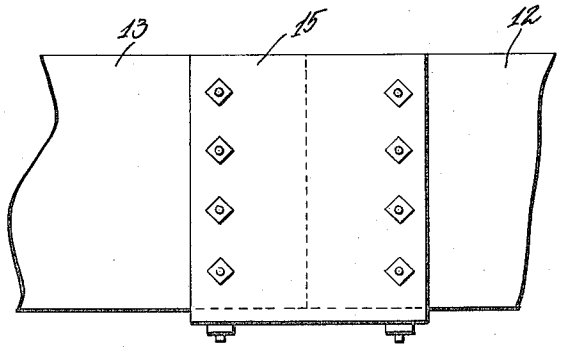


Fig. 6.

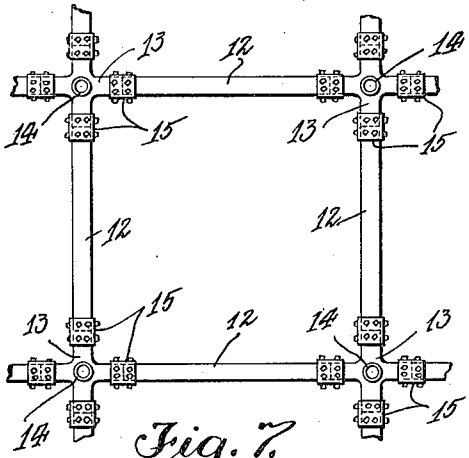


Fig. 7.



Fig. 8.

Fig. 9.



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Patented June 11, 1929. 1,716,491

UNITED STATES PATENT OFFICE.

ALVAH M. GRIFFIN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CONSOLIDATED STEEL CORPORATION, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

FLOATING DECK, GAS-TIGHT TYPE.

Application filed July 13, 1927. Serial No. 205,334.

This invention relates to a floating deck, and refers particularly to the type of floating deck which is employed in oil tanks or reservoirs.

An object of the present invention is to provide a floating deck of the type in which a plurality of separately constructed pontoons are provided, which pontoons are each relatively movable and in which the spaces between the pontoons are adequately sealed and made gas-tight.

Heretofore floating decks for oil tanks or reservoirs have been provided in which the deck is provided with a plurality of pontoons so that the buoyancy of the deck is due to the entrapped air within the pontoons. These floating decks have been so constructed that the puncture of a single pontoon of the deck will not affect the floating of the entire deck. However, the floating decks heretofore constructed have had each of the pontoons attached in fixed relation to the adjacent pontoon and difficulty has been experienced in sealing the spaces between the pontoons. Moreover, when the pontoons are attached in fixed relation each to the other, difficulty is experienced in certain cases in making the assembled deck properly fit within the tank or reservoir.

It is an object of the present invention to provide a floating deck in which the relation between the individual pontoon members is adjustable so that the deck has a certain amount of variation in size and shape, and it is the object of the invention to provide such an adjustable pontoon deck without the sacrifice of the gas-tight properties of the deck or without permitting the puncture of a single pontoon of the deck to form a break in the deck or cause the entire deck to sink.

Various other objects and advantages of the present invention will be understood from a description of the accompanying drawings, which illustrate a preferred form or example of a floating deck embodying the invention.

In the drawings:

Figure 1 represents a plan view of a tank provided with a floating deck embodying the present invention,

Figure 2 is an elevation of Figure 1 mainly in vertical section,

Figure 3 is an enlarged fragmental section of the peripheral seal construction,

Figure 4 is an enlarged fragmental section of the seals interconnecting the adjacent pontoon members,

Figure 5 is an enlarged fragmental section of the portions of the seal,

Figure 6 is a fragmental section at right angles to Figure 5,

Figure 7 is a bottom fragmental plan view of the sealing troughs,

Figure 8 is a detail sectional view taken substantially on the line 8—8 of Figure 3, showing one form of elastic construction for the sealing member, and,

Figure 9 is a similar detail sectional view of a second modified form of sealing member construction.

Referring to the drawings, 2 indicates a tank provided with a valve 3 at its lower end for discharge of water. 4 generally indicates the floating deck for the tank 2. Said floating deck is made up of pontoons 5 indicated as rectangular in section, each comprising a bottom plate 6, four side plates 7, and a top plate 8, the same being welded together to form an air-tight chamber 9. The top plate 8 of each of the pontoons is of greater area than the bottom plate 6 and extends beyond the side plates 7, as indicated at 10, and there has its outer ends turned vertically downwardly, as indicated at 11. These downward extensions 11 are sealing extensions and are positioned within the sealing troughs 12. The sealing troughs 12 are indicated as being of U-shape and extending between the adjacent pontoons 5.

The troughs 12 engage corner sealing members 13, each of which is preferably provided with a downward extension 14 which serves as a leg for supporting the floating deck 4 when the floating deck sinks to the bottom of the tank 2. The corner sealing members 13 and sealing troughs 12 are abutted together and attached by butt straps 15 and packing 16. Each of the corner sealing members 13 is also provided at its center with an upwardly extending pin 17 extending above the top of the troughs, which pins are threaded at their upper ends to nuts 18. Said nuts 18 in turn engage cover plates 19 for the sealing troughs, the cover plates 19 engaging the top plates 8 of the adjacent pontoons.

The sealing troughs 12 and corner sealing members 13 are of greater depth than the downward extensions 11 of the top plates 8

so that such extensions 11 normally have their lower ends spaced slightly from the bottom of the sealing troughs. In order to seal the deck from escape of gas or fluid from between the pontoons, the sealing troughs 12 and corner sealing members 13 are preferably filled with a liquid, plastic or solid medium. As an example of a preferred form of sealing medium, I prefer to employ a bituminous pitchy material which is indicated at 20 as partially filling the sealing troughs and entrapping or checking any discharge of gas or fluid from beneath the deck to above the deck.

Surrounding the periphery of the deck is a peripheral sealing trough 21 in which the peripheral downward extensions 22 of the pontoons extend. Said peripheral downward extensions of the pontoons are made cylindrical in form and the peripheral sealing troughs 21 are provided with a plurality of pins 23 extending upwardly from the base of the trough which pins are threaded to nuts 24 engaging plates 25 which in turn engage the top plates of adjacent pontoons and hold or support the peripheral sealing troughs upon the deck. If desired, such sections of the deck as are adjacent the periphery of the deck, and indicated at 26 in Figure 1, may be merely cover plates and not complete pontoon sections, although each of such sections may comprise a special shape of pontoon member if desired. The peripheral sealing troughs 21 support in turn peripheral sealing members 27 which have bow-shaped portions 28 normally engaging the inner wall of the tank 2 and have inner extensions 29 turned down and sealed within the sealing material 30 in the peripheral sealing troughs. Preferably said peripheral seals are yieldingly urged toward the tank walls by suitable means, such as a spring 31. The seals 27 may consist of one continuous seal or a plurality of overlapping or abutting sealing plates.

In order to discharge water from above the tank to below the tank, there is provided a telescopic vertical discharge tube 33 having openings 34 at its lower end.

The deck of the present invention provides a deck seal to prevent the escape of gas from below the deck while at the same time permitting an adjustment of the relative positions of the pontoons, thereby permitting somewhat of an extension or contraction of the deck area in order to best fit the tank 2. Moreover, this is accomplished without danger that the deck surface will be broken if one or more of the pontoons are punctured since each pontoon is supported in position by the adjacent pontoons of the deck.

While the particular form of floating deck herein described is well adapted to carry out the objects of the present invention, it is understood that various modifications and changes may be made, all coming within the scope of the following appended claims.

I claim:

1. A floating deck comprising a plurality of buoyant members, said buoyant members having downwardly extending plates, sealing troughs between the buoyant members into which said extensions extend, and plastic sealing material in said troughs.

2. A floating deck comprising a plurality of buoyant members, said buoyant members having downwardly extending plates, sealing troughs between the buoyant members into which said extensions extend, plastic sealing material in said troughs, and means for adjustably attaching said members in said trough.

3. A floating deck comprising a plurality of buoyant members, said buoyant members having downwardly extending plates, sealing troughs between the buoyant members into which said extensions extend, plastic sealing material in said troughs, and means for adjustably attaching said members in said trough, said latter means including means for mutually supporting each buoyant member from the adjacent buoyant members.

Signed at Los Angeles, California, this 7 day of July, 1927.

ALVAH M. GRIFFIN.