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A. M. GRIFFIN

FLOATING DECK

Filed Sept. 27, 1926

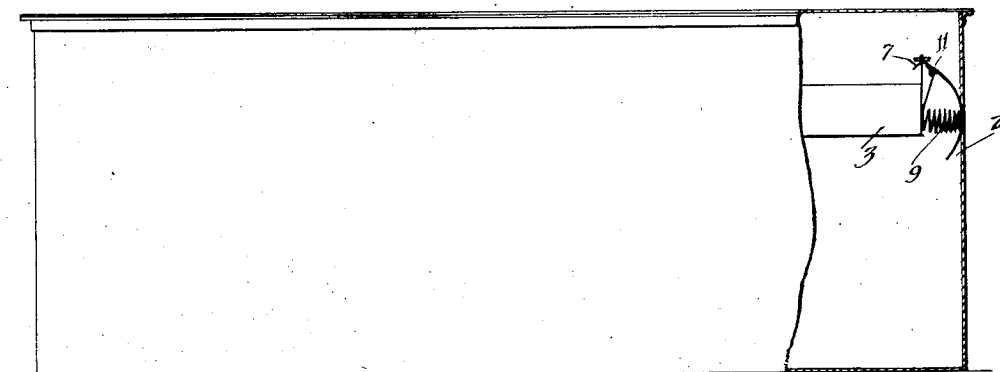


Fig. 1

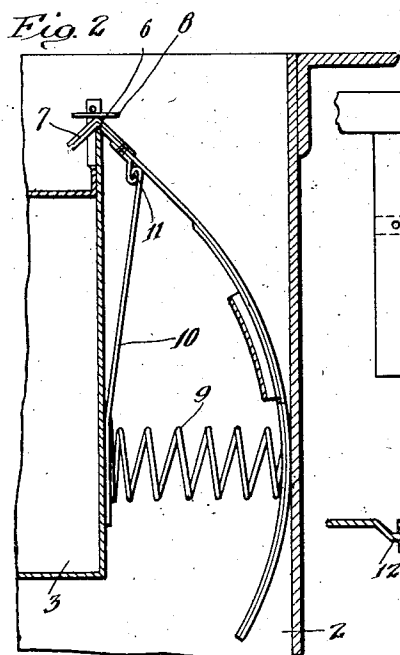


Fig. 2

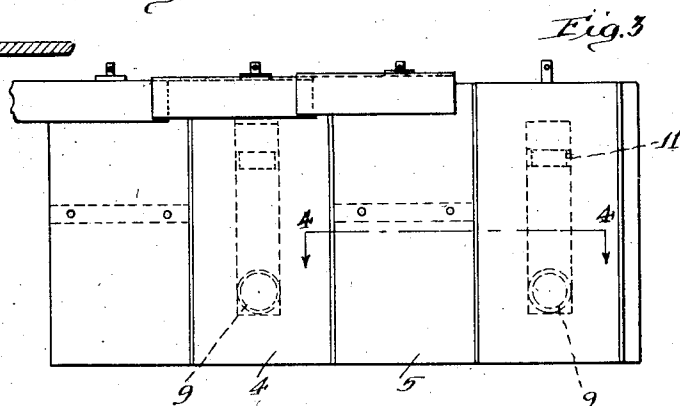


Fig. 3

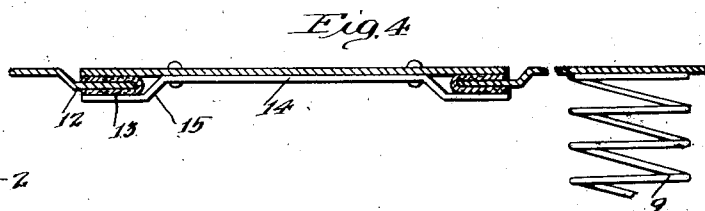


Fig. 4

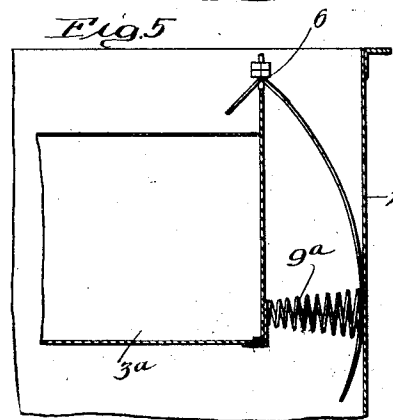


Fig. 5



Fig. 6

Inventor
Alvah M. Griffin
By Lyons & Lyons
Attorneys

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UNITED STATES PATENT OFFICE.

ALVAH M. GRIFFIN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO UNIVERSAL HOLDING COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF DELAWARE.

FLOATING DECK.

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This invention relates to a floating deck, and refers particularly to a seal for a floating deck of the kind employed upon oil tanks.

5 An object of the present invention is to provide a floating deck with an exceptionally efficient and satisfactory seal.

In the use of floating decks upon oil tanks, it is desirable to seal the space between the 10 tank wall and the outer periphery of the floating deck. Hitherto, various seals have been employed for this purpose but none of said seals have entirely eliminated the escape of oil vapors around the seal. In accordance with the present invention, I provide 15 the floating deck with curved sealing plates pivoted at their upper ends to the floating deck and extending outwardly into engagement with the tank walls. Said sealing 20 plates thus have their lower swinging end extending down within the oil supporting the deck. Moreover, the seals of the present invention have their edges interfitting and packed together so as to effectively 25 eliminate any leakage. In order to secure positive engagement between the seals and the tank wall and also in order that the seals may assist in centering the floating deck of the tank, the seals are provided with 30 spring means urging the seals into engagement with the tank walls.

Various further features of the present invention will appear from a description of a preferred form of seal for a floating deck 35 embodying the invention. For this purpose, reference is made to the accompanying drawings.

In the drawings:

40 Figure 1 is an elevation of a tank provided with a floating deck.

Figure 2 is an enlarged fragmental vertical section of the floating deck and tank disclosing the seal construction and its engagement with the tank wall.

45 Figure 3 is a developed view of part of the seal construction.

Figure 4 is a section on the line 4-4 of Figure 3.

50 Figure 5 is a fragmentary sectional elevation of a modified form of seal construction, and,

Figure 6 is a fragmentary horizontal section of the sealing plates.

Referring to the drawings, 2 indicates a 55 tank provided with a floating deck 3. The

floating deck may be of any desired form of construction, the particular form of the floating deck not being an essential feature of the present invention. The floating deck 3 is provided with a plurality of sealing 60 plates 4 and 5, of which 4 are termed inside plates and 5 outside plates. Said sealing plates are supported at their upper ends 6 by the outer wall of the floating deck 3, having their upper end bent at right angles 65 as indicated at 7 to provide for engagement therewith. Over the upper ends of the sealing plates are placed caps 8 for reinforcing such portion of the seal. The sealing 70 plates are bowed outwardly in position to engage with the side walls of the tank 2, and are normally held in firm engagement with the wall of the tank 2 by suitable means such, for example, as the coil springs 9. 75 The coil springs 9 are indicated as mounted between the sealing plates and the outer walls of the floating deck 3 with their inner ends supported by spring supporting plates 10 which, in turn, are pivotally supported 80 as indicated at 11 by the inside sealing plates 4 near their upper ends.

The outside plates 5 are made straight in cross section whereas the inside plates 4 are indicated as having offset ends 12 so that the 85 inside and outside sealing plates 4 and 5 may overlap while retaining their outer walls substantially flush. Around the offset ends 12 of the inside sealing plates 4 is provided packing means 13 for sealing the 90 plates together and for retaining said packing means in position, there is secured cleats 14 to the outside sealing plates 5, said cleats 14 having offset ends 15 extending over the offset ends 12 of the inside sealing plates 95 and engaging the packing 13.

A deck provided with the seal in accordance with the present invention is adapted to positively prevent the escape of vapors between the sealing deck and wall of the tank 2. Moreover, the free ends of the sealing 100 plates extending down into the liquid supporting the deck causes the liquid to assist in forming the seal and in lubricating the seal while it engages the tank wall. The sealing plates are yieldingly urged outward 105 by the springs 9 which, in turn, are supported by the sealing plates and thus protected from being excessively worn.

Part of the features of the seal of the present invention may be embodied in a sim- 110

plified form of seal construction illustrated in Figures 5 to 6 inclusive. In Figures 5 and 6, the floating deck 3^a is provided with inside and outside sealing plates 4^a and 5^a respectively, pivoted at their upper ends 6 to the top of the floating deck 3^a. The sealing plates 4^a and 5^a curve outwardly and downwardly to engage the side walls of the tank 2^a. The sealing plates are yieldingly urged outwardly by springs 9^a which, in this embodiment of the invention, have their inner ends supported by the floating deck 3^a and their outer ends engaging the rear sides of the sealing plates.

The outside sealing plates 4^a are provided with offset ends 15^a while the inside sealing plates 5^a are in turn provided with double-backed ends 12^a which curve around the offset ends 15^a of the outside sealing plates 4^a. With this construction, the sealing plates 4^a and 5^a have their outer surfaces substantially flush and have their ends interfitted as well as overlapped to efficiently seal against escape of vapors from the oil tank. While the particular forms of the invention herein described are well adapted to carry out the objects of the invention, various modifications may be made without departing from the invention and the invention includes all such modifications and changes as come within the scope of the appended claims.

I claim:

1. A floating deck for oil tanks having a circular series of sealing plates surrounding and pivotally mounted on the deck, the sealing plates being adapted to swing outwardly into engagement with the tank wall, springs normally urging said sealing plates into an outer position, and spring supporting bars engaging the inner ends of said springs, said spring supporting bars being secured to said sealing plates at one end and depending therefrom the other end of the spring supporting bars engaging and supporting said springs.

2. A floating deck for oil tanks having a circular series of sealing plates surrounding and pivotally mounted on the deck, the sealing plates being adapted to pivot outwardly into engagement with a tank wall, spring means normally urging the plates outward-

ly, and spring supporting members, said spring supporting members being pivoted at one end to the sealing plates and depending from said plates and having their opposite ends supporting said spring means.

3. A floating deck for oil tanks having a circular series of sealing plates surrounding and pivotally mounted on the deck and adapted to swing outwardly into engagement with the tank wall, part of said sealing plates having offset edges, adjacent sealing plates having their edges overlapping, packing between the overlapping edges of the sealing plates, spring means normally urging the sealing plates outwardly, and spring supports supported by the sealing plates at one end and depending therefrom and having the opposite end supporting said spring means.

4. A floating deck for an oil tank having a circular series of sealing plates surrounding and pivotally mounted on the deck and adapted to swing upwardly into engagement with the tank wall, part of said sealing plates having offset edges, the edges of adjacent sealing plates overlapping, spring means normally urging the sealing plates outwardly, and spring supports pivotally supported by said sealing plates at their upper ends and having their lower ends depending downwardly in contact with the side wall of the floating deck at one side and at the opposite side engaging and supporting said spring means.

5. A floating deck for an oil tank having a circular series of sealing plates surrounding and pivotally mounted on the deck, and having their free ends extending downwardly into position to be immersed in a fluid supporting the deck, spring means normally urging the plates outwardly, spring supports carried by the sealing plates, and packing means between adjacent edges of the sealing plates and disposed between the sealing plates and side walls of the oil tank, said spring means being disposed between said spring supports and said sealing plates.

Signed at Los Angeles, California, this 16 day of September, 1926.

ALVAH M. GRIFFIN.