Nov. 5, 1929. A. M. GRIFFIN 1,734,622

FLOATING DECK AND SWING PIPE THEREFOR

Original Filed Feb. 23, 1927

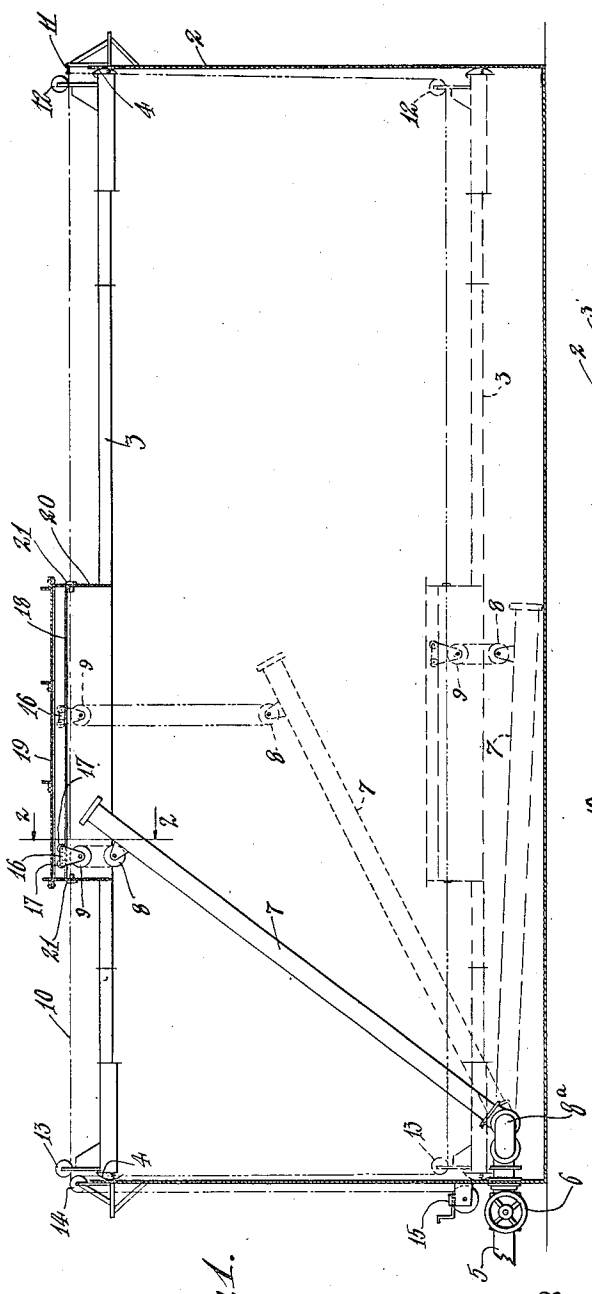


Fig. 1.

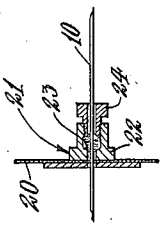


Fig. 4.

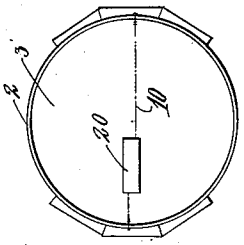


Fig. 3.

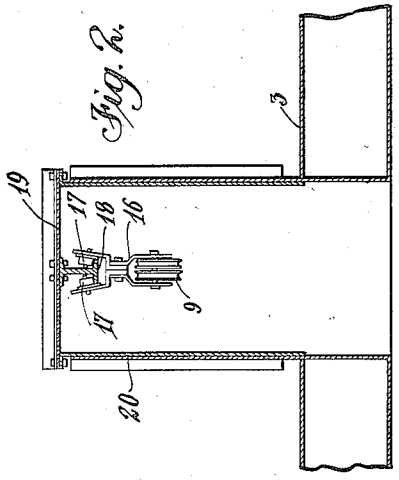


Fig. 2.

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UNITED STATES PATENT OFFICE

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FLOATING DECK AND SWING PIPE THEREFOR

Application filed February 23, 1927, Serial No. 170,171. Renewed May 11, 1929.

This invention relates to floating decks such, for example, as are employed upon oils tanks, and refers particularly to the combination with a floating deck of a swing pipe and supporting mechanism.

Tanks employed for holding or storing oils are frequently covered with a floating deck which is employed for the purpose of reducing evaporation and lowering the fire hazard. Such floating decks normally cover the entire surface of the oil. In withdrawing the oil from a tank of this kind, it is frequently desirable to draw the oil from different points above the bottom of the tank. This is for the reason that oil normally contains a certain amount of water and dirt which settle out in the tank, so as to make it desirable to normally draw the oil from above the bottom of the tank.

Heretofore difficulty has been experienced in operating a swing pipe in an oil tank which is equipped with a floating deck.

An object of the present invention is to provide an oil storage apparatus combined with a tank and floating deck, a swing pipe in which the free end of the swing pipe may be supported from the floating deck and said swing pipe will remain in fixed position independent of the movement of the swing pipe as the quantity of oil in the tank increases or decreases.

Another object of the present invention is to provide means by which the swing pipe may be moved in the tank below the floating deck.

Various other objects and advantages of the present invention will be apparent from a description of a preferred form or example of a storage apparatus embodying the invention. For this purpose, there is hereinafter described the preferred example of the storage apparatus, the apparatus being illustrated in the accompanying drawings, in which:

Figure 1 is an elevation mainly in vertical section,

Figure 2 is a section on the line 2—2 of Figure 1,

Figure 3 is a plan view of the apparatus on a reduced scale, and,

Figure 4 is a section through one of the stuffing boxes employed.

Referring to the drawings, the apparatus is illustrated as comprising a tank 2. Said tank may be of any desired or suitable construction adapted for holding a liquid such as oil, and generally possesses considerable capacity. The tank 2 is indicated as provided with a floating deck 3 which may also be of any desired or preferred form of construction, the floating deck preferably being of the pontoon construction such, for example, as is described in the applications of Charles R. Gallagher, Serial Nos. 739,122, 24,424, and 115,453, filed September 22, 1924, April 20, 1925, and June 12, 1926, respectively.

The floating deck 3, as usual, terminates a short distance from the inner walls of the tank 2 and carries sealing plates 4 engaging the wall of the tank 2. 5 indicates a withdrawal line for the tank 2, the line being provided with a valve 6 outside of the tank and extending into the tank and there terminating in a swing pipe section 7, the pivot point 8^a of which is at the lower end of the tank. The free end of the swing pipe 7 is provided with a pulley 8, and above the pulley 8 there is supported by the floating deck 3 a similar pulley 9. The pulleys 8 and 9 form part of a line and falls by which the swing pipe 7 is suspended from the floating deck 3. 10 indicates the line of such line and falls, one end of which is fixed to the tank, as indicated at 11, and the line hence passes around a pulley 12 mounted by the floating deck 3 at one side and hence around the pulleys 8 and 9 and over to a pulley 13 supported by the floating deck 3 diametrically opposite the pulley 12, the line passing hence over a pulley 14 supported by the tank 2 to a winch 15 located outside of the tank and near the bottom.

By this construction, by operation of the winch 15 the falls and line may be drawn up or lowered to position the free end of the swing pipe 7 in any desired position within the tank 2, while the pipe is supported by the floating deck 3.

In order that the raising and lowering of the floating deck 3 will not affect the position of the swing pipe 7, the pulley 9 of the

falls and line is supported by a carrier 16 indicated as provided at its top with a plurality of rollers 17 movably mounting the carrier 16 upon a track 18. The track 18 is formed by an I-beam attached to a top wall 19 of a hood 20 provided in the floating deck 3, the track 18 being horizontally disposed and alined with the side pulleys 12 and 13 of the floating deck.

In order that the line 10 in passing in and out of the hood 20 will not carry any oil or liquid above the deck, there are provided stuffing boxes 21 where the line 10 enters the hood 20, the stuffing boxes 21 including the boxes 22, packing 23 and glands 24.

In the drawings, the apparatus is shown in full lines with the floating deck and swing pipe in the upper position. In dotted lines, there is indicated a second position of the swing pipe 7 which it may assume by operation of the winch 15 without motion of the floating deck 3, the carrier 16 traveling on the track 18 toward the center of the tank as the swing pipe 7 is lowered. There is also indicated in Figure 1 by dotted lines a second or lowered position of the floating deck 3, indicating the position of the line 10 as the floating deck 3 is lowered. It will be seen from a comparison of the full line and dotted line positions of the floating deck 3 that whenever the floating deck 3 lowers, the line 10 is taken from between the pulleys 8 and 9 of the falls and tackle and placed over along the side walls of the tank 2 extending from the top of the tank to the pulleys 12 and 13 and the increase of the amount of line at the side walls of the tank 2 just compensates for the decrease in the amount of line necessary to extend between the pulleys 8 and 9. Hence with each fixed position of the winch 15, an upward or downward movement of the floating deck 3 has no effect upon the position of the swing pipe 7.

While the apparatus herein described is well adapted for carrying out the objects of the present invention, it is understood that various modifications may be made, all coming within the scope of the following appended claims.

I claim:

1. A device of the class described comprising a tank, a floating deck for the tank, a swing pipe, means for supporting the free end of said swing pipe from the floating deck, said means including means automatically maintaining the swing pipe in fixed position with relation to the tank during vertical motion of the deck.

2. A device of the class described comprising a tank, a floating deck for the tank, a swing pipe, means for supporting the free end of said swing pipe from the floating deck, said means including means automatically maintaining the swing pipe in fixed position with relation to the tank during vertical motion of the deck, and means adapted for regulating the position of the swing pipe.

3. A device of the class described comprising a tank, a floating deck, a swing pipe, a falls and line suspending the free end of said swing pipe from said floating deck, and means carried by the tank and floating deck for automatically taking up and paying out the line between the falls and tackle as the floating deck rises and descends in order to maintain the swing pipe in fixed position.

4. In a device of the class described, a tank, a floating deck for the tank, a swing pipe for the tank, a falls and line supporting the free end of the swing pipe from the floating deck, said falls and line being supported by a horizontally movable carrier on the floating deck, and pulley means supported by the floating deck for automatically taking up and paying out the line between the falls and line as the floating deck rises and descends.

Signed at Los Angeles, California, this 9 day of February, 1927.

ALVAH M. GRIFFIN.