

R. R. BLOSS.
DECK FOR OIL TANKS.
APPLICATION FILED MAY 31, 1921.

1,404,924.

Patented Jan. 31, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

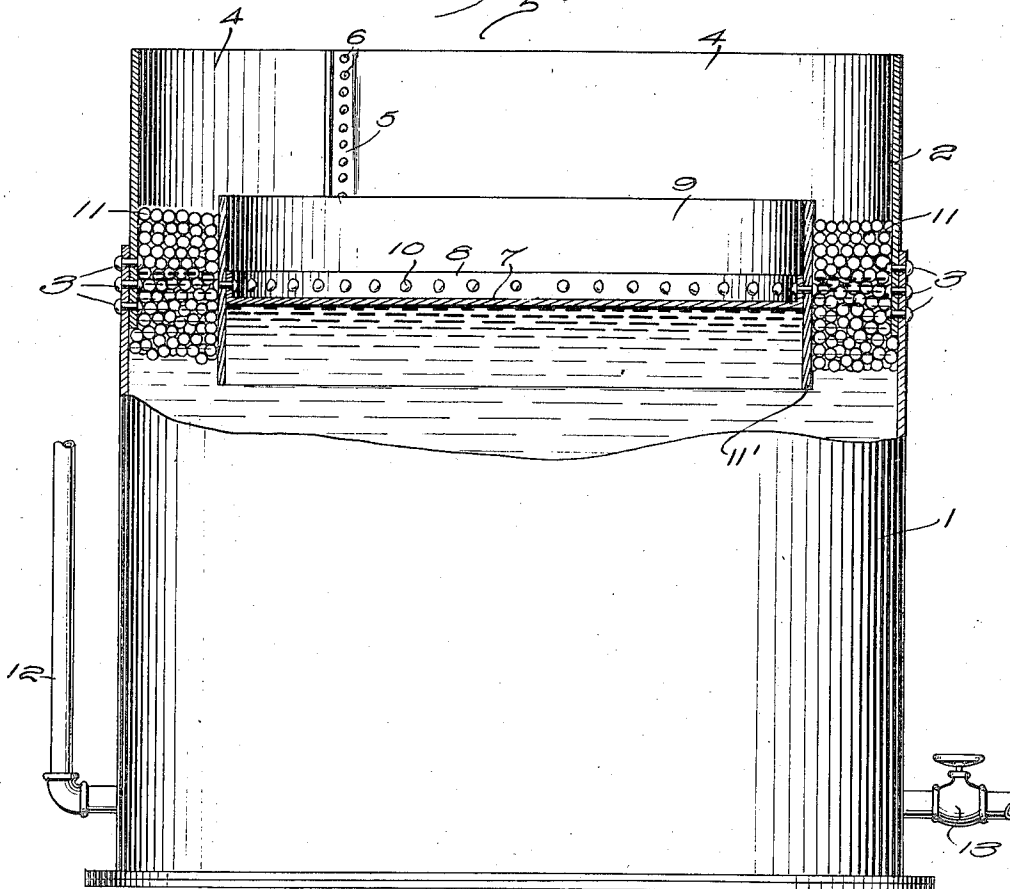
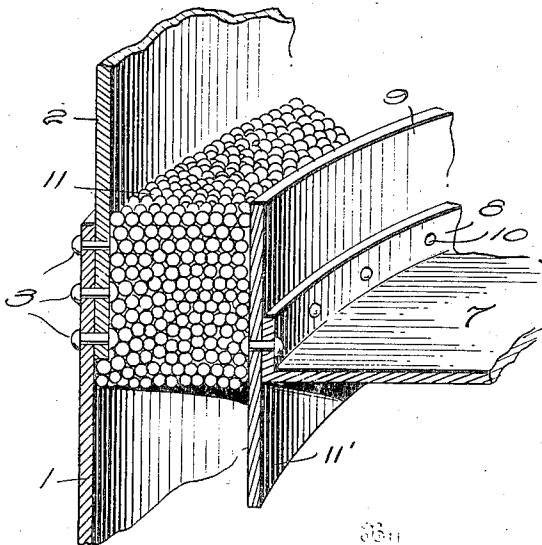


Fig. 2.

IN WITNESS WHEREOF
RICHARD R. BLOSS

Ch. Parker Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

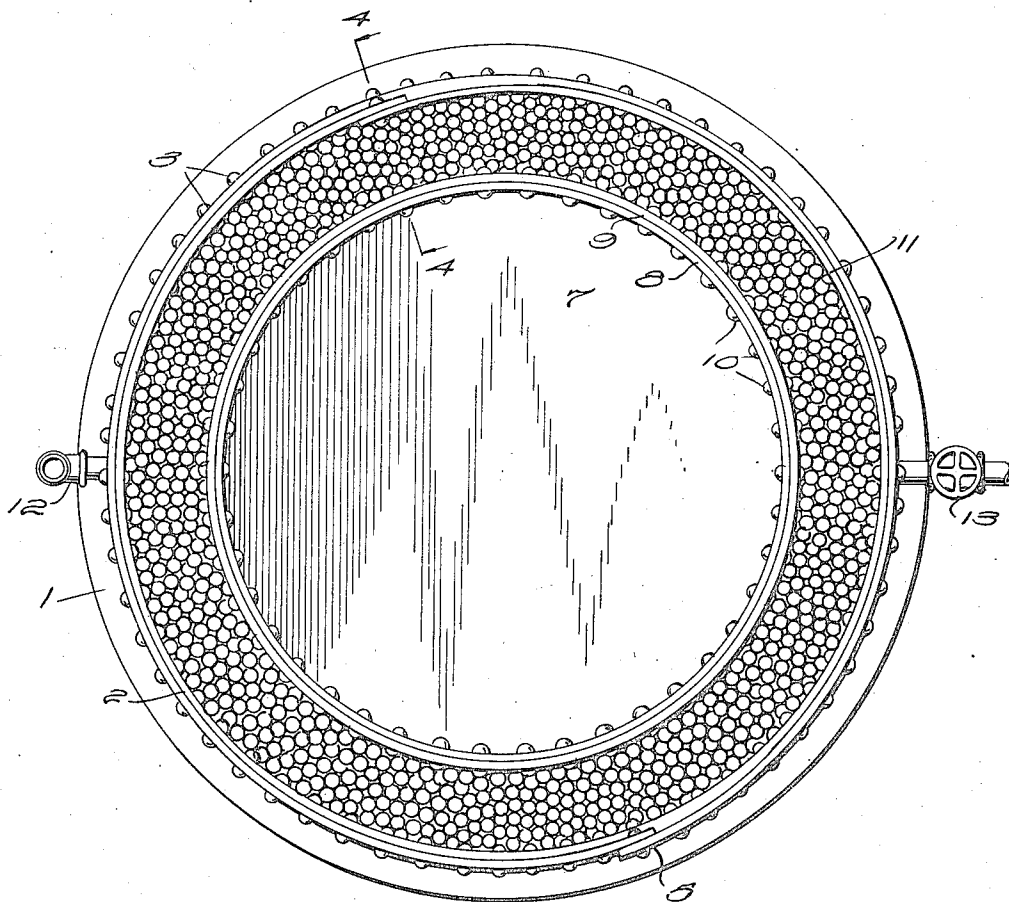
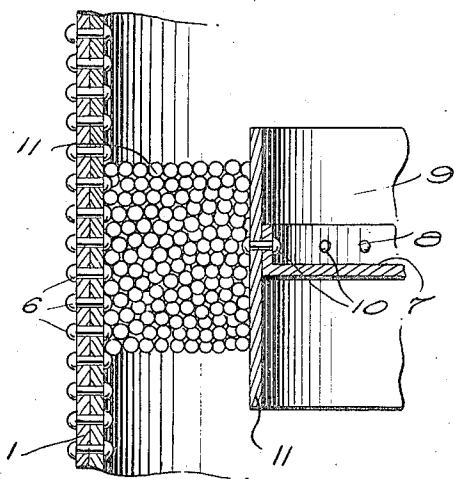


Fig. 4.

Inventor
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UNITED STATES PATENT OFFICE.

RICHARD RALPH BLOSS, OF PARKERSBURG, WEST VIRGINIA, ASSIGNOR TO THE
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DECK FOR OIL TANKS.

1,404,924.

Specification of Letters Patent.

Patented Jan. 31, 1922.

Application filed May 31, 1921. Serial No. 473,566.

To all whom it may concern:

Be it known that I, RICHARD R. BLOSS, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented certain new and useful Improvements in Decks for Oil Tanks, of which the following is a specification.

This invention relates to decks for oil tanks, and more particularly to a deck adapted to float on top of a body of oil within a tank.

In storing oil in tanks, there is a great loss due to evaporation of the volatile constituents of the oil. When a tank is partially filled, an air space is formed above the body of oil, and a constant circulation of air takes place in this space, due to openings in the deck, leakage, and similar causes. It is apparent that the provision of an oil tank in which the space between the body of oil and the deck of the tank is eliminated would materially reduce losses due to evaporation.

Another disadvantage of the ordinary type of oil tank is the liability of explosions due to confinement of gases and vapors within the space above the body of oil. As the oil in the tank vaporizes, and the permanent gases contained in the oil are liberated, it is necessary to permit their removal at a sufficient rate of speed to prevent the accumulation of a body of explosive gases and vapors at a high pressure.

In the present invention, I provide a deck adapted to float on the body of oil within the tank and thus eliminate the existence of a body of air or gases and vapors within the tank above the body of oil. It will be apparent that with a deck which raises and lowers as the oil level in the tank is raised and lowered, the losses due to evaporation are materially reduced and the fire hazard is practically eliminated.

Due to irregularities in the wall of the tank, it is necessary to provide a deck of smaller diameter than the diameter of the tank to permit it to raise and lower. The space around the deck may be filled with any suitable material light enough to float on the body of the oil. I find it advantageous to employ a filling of granular material or spheroids through which the permanent gas

and vapors from the body of oil may pass to the atmosphere.

In the accompanying drawings, I have shown one embodiment of the invention. In this showing:

Figure 1 is a side elevation of a tank, parts being shown in section,

Figure 2 is a perspective view of a portion of a tank and deck,

Figure 3 is a plan view, and,

Figure 4 is a vertical sectional view on line 4—4 of Figure 3.

The tank comprises a plurality of sections 1 and 2, secured to each other by any suitable means, such as rivets 3. Each of the sections of the tank are formed of a plurality of plates 4, the edges of which are overlapped to form a lap joint 5, (see Figure 3). These plates are secured to each other by means of rivets 6.

The deck comprises a main body portion 7, having an annular flange 8. A rim 9 is secured to the flange in any suitable manner, as by means of rivets 10, and this rim projects below the deck forming a skirt 11.

As shown, the deck is made considerably smaller in diameter than the diameter of the tank to permit it to raise and lower as the tank is filled or emptied without contacting with the rivets 3 and 6. The space between the rim 9 and the wall of the tank is filled with a granular substance 11 of spheroids, the substance being packed closely to permit slow circulation of air or gases. As shown, the tank may be provided with a filling pipe 12 and an outlet pipe 13.

In operation, the deck raises and lowers as oil is placed in the tank or removed, eliminating the space between the body of oil in a partly filled tank and the deck. In this manner, air is entirely excluded from contact with the surface of the liquid except the small amount of air which will pass downwardly between the closely packed spheroids 11. By cutting off the circulation of air, the losses due to evaporation are reduced to a minimum.

The elimination of the space between the surface of the oil and the deck of the tank also eliminates the fire hazard as the vapors formed and gases liberated pass upwardly through the space between the spheroids into

the atmosphere without accumulating as in the ordinary tank. Even if a considerable quantity of oil is present on the surface of the deck and the spheroids, and should become ignited, burning will continue only until this oil on the surface is consumed. Any gases formed within the tank during the heating operation will not be ignited until it has passed through the mass of spheroids and out of the tank, the lack of oxygen to support combustion between the spheroids will prevent the fire from passing into the tank.

The use of spheroids light enough to float on the body of oil affords a filling for the space between the deck and the wall without the necessity of providing supporting means for the spheroids. The skirt 11', extending below the oil level, prevents them from becoming displaced and getting under the deck.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. The combination with an oil tank, of a floating deck adapted to rest on the surface of a body of oil within the tank and spaced from the walls of the tank, and a

floating filling of loose material arranged in the space between the deck and the walls of the tank and normally filling said space.

2. The combination with an oil tank, of a floating deck comprising a body portion adapted to rest on the surface of a body of oil within the tank, and a filling of floating spheroids arranged between the deck and the walls of the tank.

3. The combination with an oil tank, of a floating deck adapted to rest on the surface of a body of oil within the tank, said deck comprising a body portion of less diameter than the diameter of the tank, a rim projecting upwardly from the periphery of the body portion, and a filling of granular material arranged in the space between the rim and the walls of the tank and adapted to float on the body of oil.

4. The combination with an oil tank, of a floating deck adapted to rest on the surface of a body of oil within the tank, said deck comprising a body portion of less diameter than the diameter of the tank, a rim secured to the periphery of the body portion and projecting above and below said body portion, and a filling of floating spheroids arranged in the space between the rim and the walls of the tank.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD RALPH BLOSS.

Witnesses:

E. R. AHRENDT,

HERBERT L. POSTLEWAIT.