

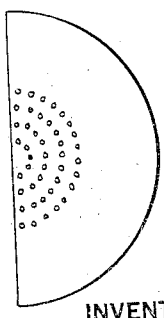
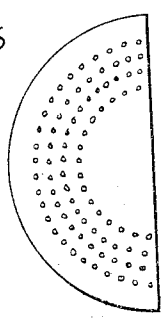
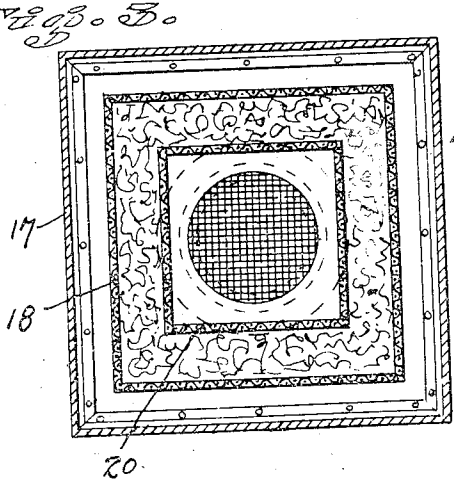
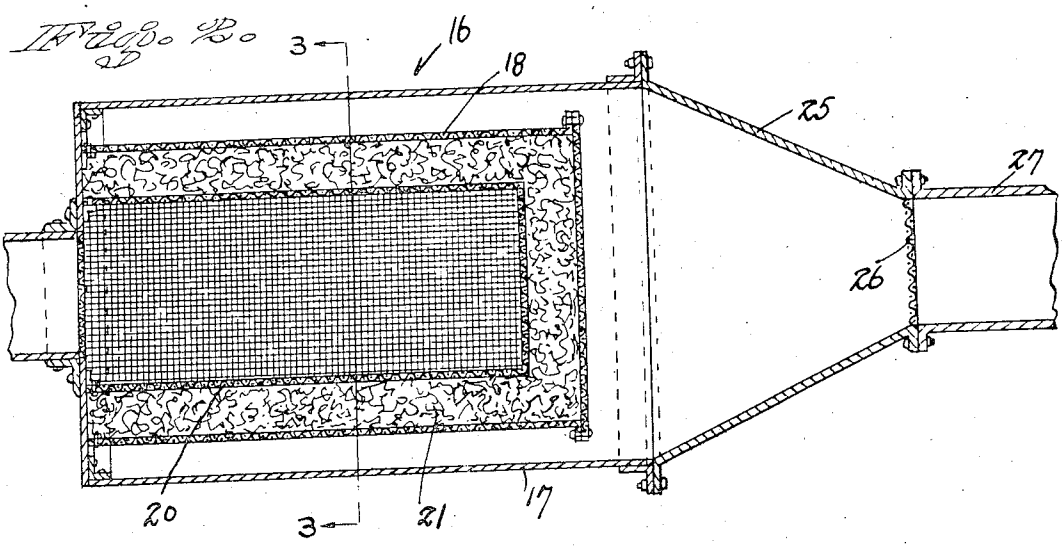
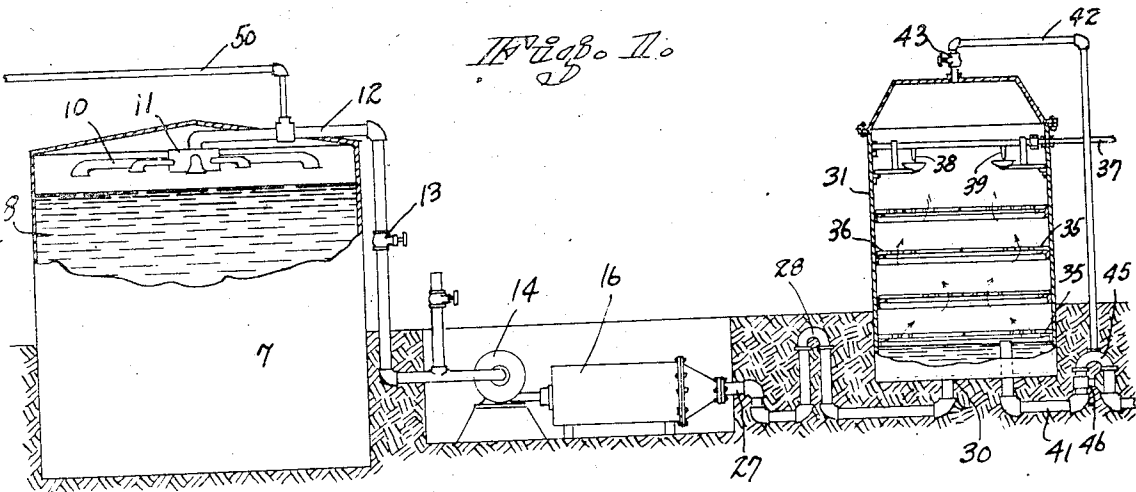
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H. J. BUCKING

1,753,401

SAFETY APPARATUS FOR OIL STORAGE TANKS

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UNITED STATES PATENT OFFICE

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SAFETY APPARATUS FOR OIL-STORAGE TANKS

Application filed November 24, 1926. Serial No. 150,558.

This invention relates to safety apparatus for oil storage tanks, and it has for one of its objects the provision of apparatus for preventing the oil in storage tanks from being ignited by lightning or otherwise.

Another object of the invention is the provision of fire extinguishing apparatus for oil tanks.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, this invention resides in the construction and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which

Figure 1 is a side elevation partly in section of the apparatus embodying my invention;

Figure 2 is a vertical sectional view of part of the apparatus shown in Figure 1;

Figure 3 is a section taken on line 3—3 of Figure 2, and

Figures 4 and 5 are respectively semi-circular perforated plates employed in the apparatus in my invention.

Referring to the drawings for a more detailed description thereof, the numeral 7 indicates an oil storage tank. The numeral 8 indicates a body of oil partly filling the tank. It is well known that vapors arise from the oil; and it is further known that these vapors, mixed with air, form a combustible and even an explosive combination. The air which mixes with the vapors gets into the tank through small openings above the oil level. It is therefore desirable to withdraw the oil vapor from the tank, and means are provided for performing the mentioned operation. Such means comprises a plurality of pipes 10 radially secured to a hollow center member 11 to which is secured a pipe 12 provided with a valve 13 which is connected to a pump 14. The operation of the pump 14 is effective to withdraw vapors from the tank and to pass such vapors into a member 16 shown in detail in Figure 2. The member 16 comprises a shell 17 enclosing a screen member 18 laterally spaced therefrom. Within the screen member 18 and spaced laterally therefrom is another screen member 20, and interposed be-

tween the screen members 18 and 20 is a body of mineral wool 21. It is to be understood that other material than mineral wool may be employed, and that such material may be any non-combustible porous material permitting the gas to flow from the inner screen member 20 into the space between the screen member 18 and the shell 16. Secured to one end of the shell 16 is a tapered shell 25. At the small end of the tapered conical shell 25 is secured in vertical position a screen 26. A pipe 27 connects with the smaller end of the tapered conical shell 25. The pipe 27 is formed with a trap 28 and at 30 enters the bottom of a shell 31.

The tower 31 is provided with spaced transverse circular perforated plates 35 which are made of two pieces similar to the semi-circular perforated plate shown in Figure 4, and the tower is further provided with alternating perforated plates 36, each made of two semi-circular plates of the type shown in Figure 5.

The vapors emerging from the pipe 27 pass through the water seal and through the apertures of the plates 35 and 36. It will be noted from the disposition of these perforated plates that the vapors must take a tortuous path. As the vapors rise through the tower they are condensed by water falling downwardly from a pipe 37 having outlets 38 and 39 which let the water fall into sprinklers 40. An overflow pipe 41 carries off the water and the condensed vapors for recovery of the latter. Running from the top of the tower is a pipe 42 including a pressure valve 43; this pipe connects with the top of a trap 45 having therein a check valve 46.

To extinguish a fire in the tank, I provide a steam pipe 50, through which steam may be introduced into the tank.

From the foregoing description it will be readily appreciated by those skilled in the art that the apparatus is adapted to carry out the aforementioned objects of the invention.

While I have shown only the preferred form of the invention, it should be understood that various changes or modifications may be made within the scope of the claims

hereto attached without departing from the spirit of the invention.

I claim:

1. In a device of the type described, a casing having a screened inlet and a screened outlet, a screened cylinder mounted in said casing and connecting with the inlet end, said cylinder having a closed end and the wall of said cylinder being spaced from said casing, a second screen cylinder disposed within said first cylinder and being spaced therefrom, said second named cylinder having one end connecting with the inlet and having its other end closed by a screen, the space between the screened cylinders being filled with a fibrous material.

2. In a device of the type described, a casing having a screened inlet, a screened cylinder mounted in said casing and connecting with the inlet end, said cylinder having a closed end and the wall of said cylinder being spaced from said casing, a second screen cylinder disposed within said first cylinder and being spaced therefrom, said second named cylinder having one end connecting with the inlet and having its other end closed by a screen.

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