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SAFETY-VENT FOR CRUDE-OIL-STORAGE TANKS.

1,162,019.

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To all whom it may concern:

Be it known that I, WILLIAM M. BOWLES, a citizen of the United States, residing at Shawnee, in the county of Pottawatomie and State of Oklahoma, have invented certain new and useful Improvements in Safety-Vents for Crude-Oil-Storage Tanks, of which the following is a specification.

This invention relates to safety vents for crude oil storage tanks. In the filling of such tanks, a column of gas results and it frequently happens that it becomes ignited from lightning, resulting in the contents of the tanks being set on fire. The present invention therefore aims to provide a safety vent for such tanks so constructed as to automatically close in the event of the gas being ignited through lightning striking the outlet end of the vent.

Another aim of the invention is to so construct the device that it may be employed in connection with an underground storage tank or one designed to be used above ground without any alterations in the construction of the device being made necessary.

In the accompanying drawings: Figure 1 is a vertical sectional view through the device, the view also illustrating the tank in connection with which the device is employed; Fig. 2 is a detail vertical sectional view through the outlet end of the vent.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In the drawings, the numeral 1 indicates the tank in connection with which the device is to be employed and this tank may be of cement or metal and may be located above or under ground, as may be desired. The tank is provided in its top with the usual manhole 2 closed by a cover 3 and its said top is further provided preferably at a point remote from the opening 2 with a vent opening, indicated at 4. The tank, illustrated in the drawings, is arranged underground, and fitted into the vent opening is one end of an elbow pipe 5 of tiling or other material which is a non-conductor of electricity. A number of other sections of tile, indicated at 6, are connected to and lead from the elbow pipe 5 so that the gases escaping from the tank may be conveyed the desired distance away from the tank before being permitted to escape. The terminal one of the sections 6 is fitted to the branch

7 of a vertically disposed vent pipe 8 which may, if desired, be of metal inasmuch as it, in itself, houses the safety devices embodying the invention. The lower end of the pipe 8 is preferably closed and its upper end extends above the ground surface, as clearly shown in Fig. 1 of the drawings and is open. Arranged in spaced relation with respect to each other and one above another within the upper branch of the pipe 8, are a number of disks 9 of wire gauze material, these disks permitting of the escape of the gas and yet serving effectually to prevent passage of the flame downwardly within the pipe in the event that the gas or gases above the upper disk become ignited. The disks 9 are provided centrally each with an opening 10 for a purpose which will be presently explained. A weighted valve or gate 11 is pivotally mounted, as at 12, at the juncture of the branch 7 with the pipe 8 and is designed, under conditions to be presently explained, to rest against a seat 13 formed at the point stated so as to effectually close the vent as a whole and prevent the further escape of gases or the passage of flame in the event of ignition of the gases at the upper end of the pipe 8. This valve 11 is, however, normally held open or partly open so that the vent may serve the purpose for which it is employed and this is accomplished by connecting to the valve a flexible element, as for example, a cord or wire, indicated at 14, which cord or wire is led up through the openings 10 in the disks 9 and connected to a fuse wire 15 which is mounted transversely of the upper end of the pipe 8.

It will now be apparent that under ordinary circumstances, the accumulated gases are permitted to escape from the storage tank through the vent pipe, but that should the gases be ignited through lightning or through any other cause, the fuse wire 15 will be instantly fused, thereby releasing the cord 14 and permitting the valve 11 to immediately close. As a consequence, the passage of flame from the ignited gases to the tank is effectually prevented and the tank may be filled with safety even during a storm.

Having thus described the invention, what is claimed as new is:

In a safety vent for oil storage tanks, a vent pipe having a vertically disposed branch extending above and below the pipe

proper, a valve seat within the branch at the juncture of the pipe therewith, a valve arranged to cooperate with said seat, a foraminous element arranged within the branch
5 above the valve, a fusible element extending transversely of the branch above the said foraminous element, and a flexible element connected to the fusible element and extend-

ing through the foraminous element and connected to the valve.

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

WILLIAM M. BOWLES. [L. S.]

Witnesses:

KITTY C. STURDEVANT,
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