

Dec. 2, 1930.

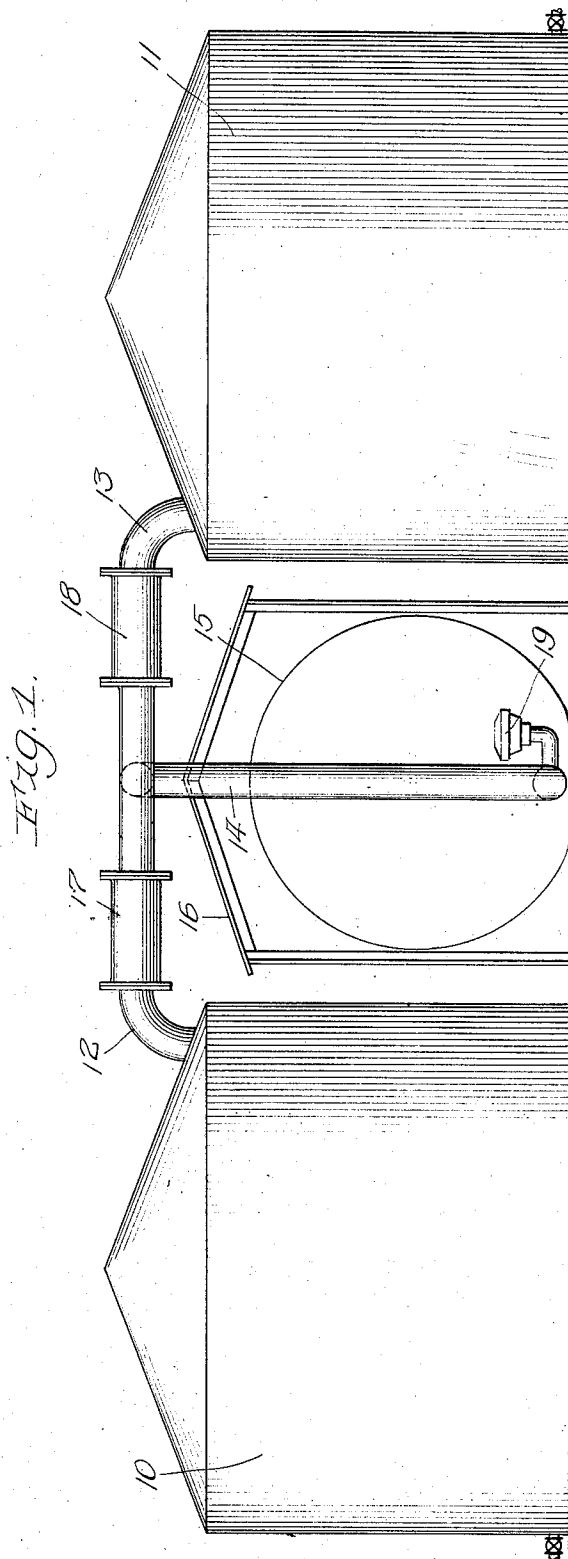
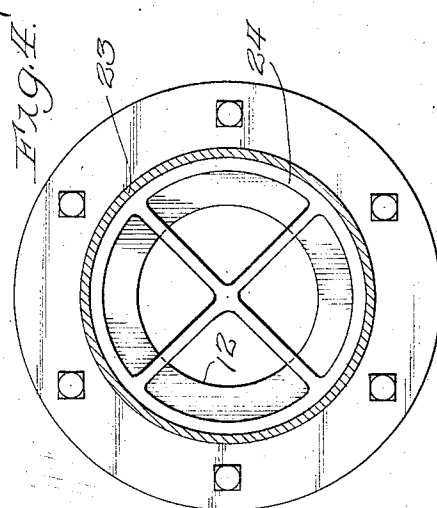
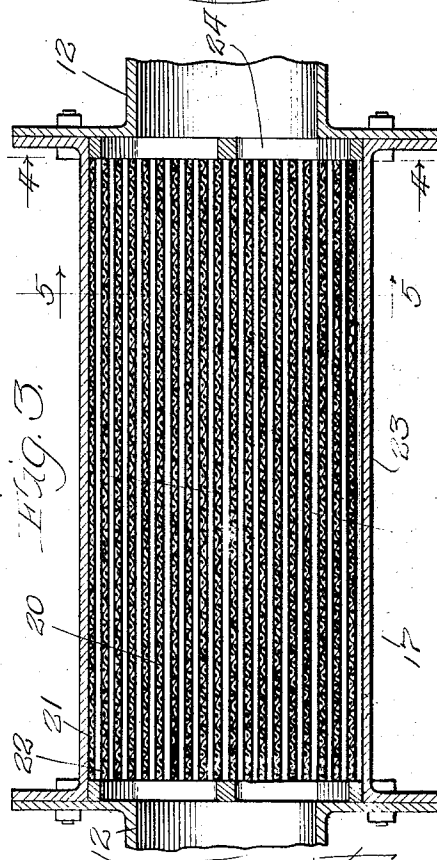
T. S. COOKE ET AL

1,783,701

STORAGE OF OILS

Filed March 18, 1926

2 Sheets-Sheet 1



Inventors:
Thomas Skidmore Cooke,
John Evans House,
By Lyngworth, Lee, Cantow & Mills,
Attys.

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Fig. 5.

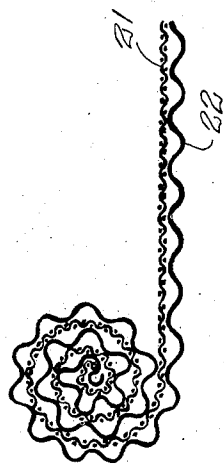
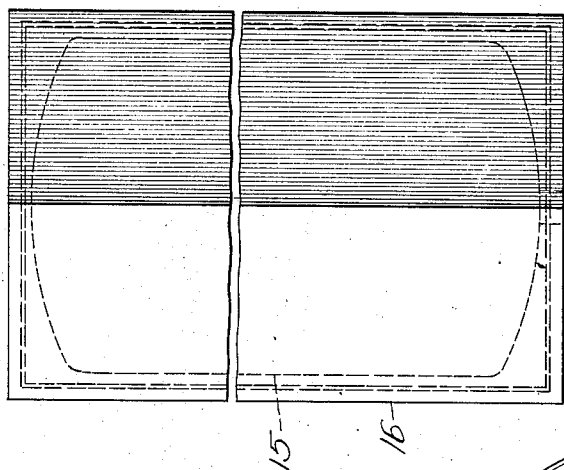
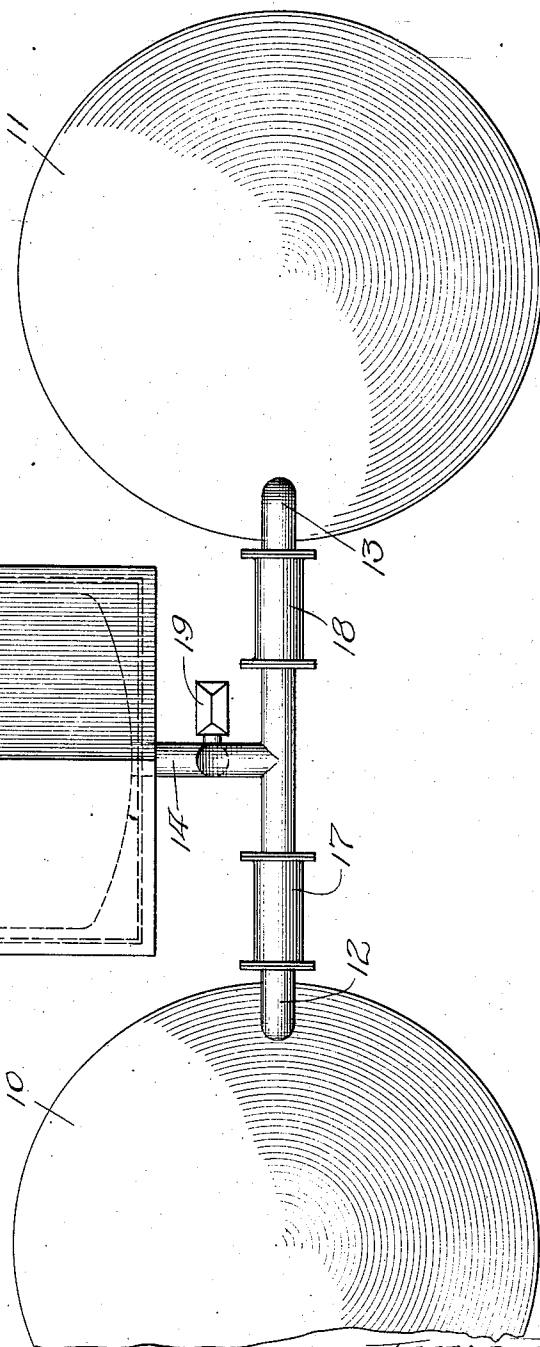


Fig. 2.



Inventors
Thomas Skidmore Cooke &
John Evans Rouse,
By *Vigrenforth, Lee, Chatter, & Miles, Attys.*

UNITED STATES PATENT OFFICE

THOMAS SKIDMORE COOKE AND JOHN EVANS ROUSE, OF CASPER, WYOMING, ASSIGNORS
TO STANDARD OIL COMPANY, OF WHITING, INDIANA, A CORPORATION OF INDIANA

STORAGE OF OILS

Application filed March 18, 1926. Serial No. 95,596.

This invention relates to the storage of petroleum liquids containing volatile fractions, such as crude oil, gasoline, or the like. It will be fully understood from the following specification, illustrated by the accompanying drawing, in which:

Figure 1 is an elevation of a pair of storage tanks for petroleum liquids containing volatile fractions, and associated vapor lines, breather bag and flame arresters;

Fig. 2 is a plan of the apparatus shown in Fig. 1;

Fig. 3 is a longitudinal sectional view of a preferred form of flame arrester;

Fig. 4 is a cross-sectional view of the flame arrester on the line 4—4 of Fig. 3;

Fig. 5 is a cross-sectional view of the flame arrester on the line 5—5 of Fig. 3 on a larger scale.

10 and 11 are storage tanks for petroleum liquids containing volatile fractions. These tanks are provided with vapor lines 12 and 13 which communicate with each other and which may also connect with the vapor line 14 which communicates with a breather bag 15, of the type described in Wilson's U. S. Patent No. 1,596,385, granted August 17, 1926. The housing for the breather bag is shown at 16. The vapor lines 12 and 13 are provided with flame-arresters 17 and 18 of the type hereinafter described and illustrated in Figs. 3, 4 and 5. The line 14 or other desired part of the vapor system is provided with a pressure relief valve or seal 19, which may suitably be that described in Atwell's U. S. Patent No. 1,553,844, granted September 15, 1925.

The preferred form of flame-arrester comprises a mass 20 of metal of good conductivity which is of substantial thickness along the direction of flow of the vapors and is located in chamber 23, which constitutes an enlarged section of the vapor line 12. The mass of metal is such that it is readily permeable by the flowing vapors while devoid of passages of sufficient size to permit the passage of flame therethrough. The mass of metal 20 is preferably constituted by a sheet of fine metal screening 21 and a sheet of thin corrugated metal plate 22, rolled together to form

a cylinder which substantially completely fills the cross-section of the chamber 23, so that the vapors can only pass through the chamber 23 by way of the small interstices between the corrugated sheet 22 and the screening 21. Spiders 24 are preferably located at the ends of the mass of metal to give it support in case of an explosion of the vapors in the line 12. The mass of metal 20 is of substantial thickness so that it will not be ruptured or displaced by an explosion on either side while flames are prevented from passing therethrough.

We claim:

1. In combination with spaced sections of a vapor line, a chamber member therebetween constituting an enlargement of the vapor line, a mass of flame-arresting material in said chamber of greater cross sectional area than the bore of said sections, and means spacing the mass from said sections.

2. In combination with spaced sections of a vapor line, a chamber member therebetween constituting an enlargement of the vapor line, a mass of flame-arresting material in said chamber of greater cross sectional area than the bore of said sections, and spiders within the chamber member, one at each end thereof, said spiders abutting the ends of said sections, reinforcing the mass and spacing the same from said ends.

3. In a vapor line, a chamber member of larger cross sectional area than the bore of the vapor line, a flame-arrester disposed in said chamber of such size as to substantially fill the same, said flame-arrester consisting of a reticulate member, and a sheet of metal rolled substantially in the form of a spiral, said arrester providing a multiplicity of passageways permeable by gas but effective to prevent passage of a flame therethrough.

THOMAS SKIDMORE COOKE.
JOHN EVANS ROUSE.