No. 695,278. Patented Mar. 11, 1902.

J. M. COCHRAN.

APPLIANCE FOR PROTECTING OIL WELLS FROM FIRES.

(Application filed Nov. 23, 1901.)

(No Model.)

Fig. 1.

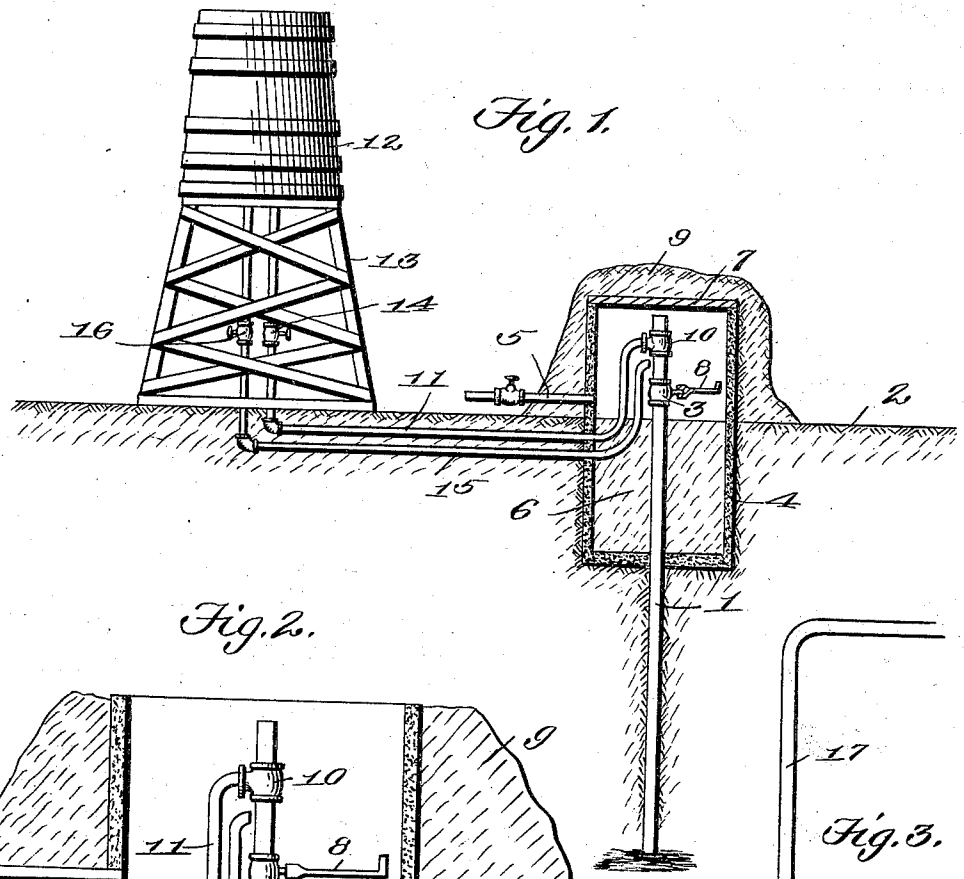



Fig. 2.

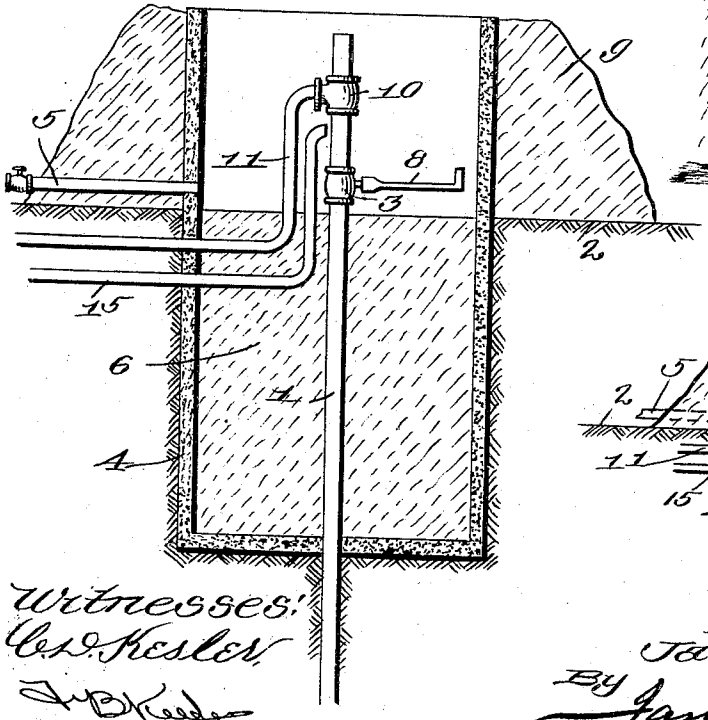
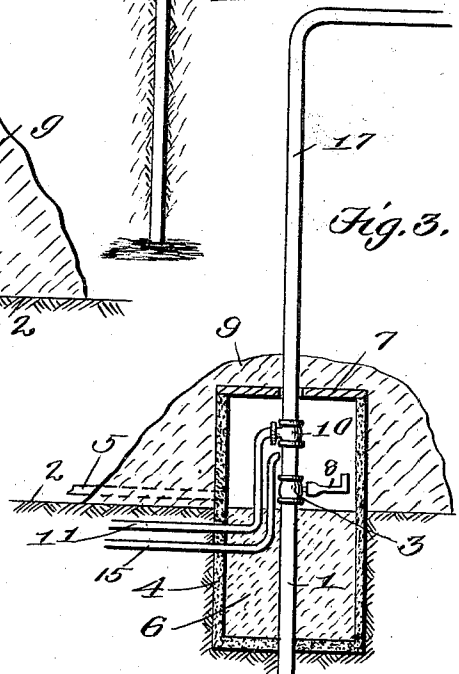



Fig. 3.

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# UNITED STATES PATENT OFFICE.

JAMES M. COCHRAN, OF GOBER, TEXAS.

## APPLIANCE FOR PROTECTING OIL-WELLS FROM FIRES.

SPECIFICATION forming part of Letters Patent No. 695,278, dated March 11, 1902.

Application filed November 23, 1901. Serial No. 83,454. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. COCHRAN, a citizen of the United States, residing at Gober, in the county of Fannin and State of Texas, have invented new and useful Improvements in Appliances for Protecting Oil-Wells from Fires, of which the following is a specification.

This invention relates to certain new and useful improvements in appliances for protecting oil-wells from fires; and to this end it consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, and in which—

Figure 1 is a sectional elevation of the appliance used in connection with an oil-well to protect the same from fires, and Fig. 2 is an enlarged detail view showing the arrangement of the inclosing shell or casing surrounding the upper portion of the oil-well pipe or casing, also the water-supply pipes for the shell or casing and the operating means for the oil cut-off valve. Fig. 3 illustrates a modified form of oil-well pipe or casing extending above the tank and the latter filled with earth to near the cut-off valve for the oil pipe or casing to inclose a portion of the water-supply pipes and the oil-well pipe or casing, the cover for the tank dispensed with.

Referring to the drawings by reference-numerals, 1 denotes the oil-well pipe or casing, which extends a suitable distance above the earth's surface 2 and is provided in that portion which extends above the earth's surface with an oil-cut-off valve 3. As stated above, the pipe or casing 1 projects above the earth's surface any desirable distance, and the cut-off valve is arranged therein so that it will always be above the earth's surface and preferably not at the outer end of the pipe or casing 1.

The numeral 4 denotes a shell, casing, or tank with an open upper end and closed bottom, this bottom being preferably constructed of cement. The shell, casing, or tank 4, suitably projects above and extends below the earth's surface 2 and is adapted to be arranged at the upper portion of the pipe or casing 1 and to receive a supply of water for surrounding the pipe or casing 1 to protect it from fire.

The reference-numeral 5 denotes an outlet for the tank 4, projecting above the earth's surface; but this outlet may be dispensed with, if desired, and the water exhausted from the tank in any desirable manner.

The reference-numeral 6 denotes a quantity of earth placed within the shell 4.

The shell, as before stated, extends above and below the earth's surface, or, in other words, it preferably extends about two feet into the earth in order to hold it firmly in place. The bottom of the shell is preferably constructed of cement, so that it will not crack or be fractured if it should be jarred. The shell or tank is filled with a quantity of earth to a level with the surface of the earth, so that the water can be drained off when desired, and, furthermore, the placing of the earth within the shell materially assists in firmly holding it in its place.

The tank 4 is provided with a cover 7 for closing it and also to inclose the upper part of the pipe or casing therein when the supply of oil is cut off through the medium of the cut-off valve 3, the latter being manually operated by the rod 8. The latter is to extend from about six to twelve inches above the cut-off valve in order that the valve can be covered with water which extends within the tank or shell. The valve then being six to twelve inches under water will be out of danger from fire. Water in the tank would not be necessary except when the well was not in use and when in danger of fire. When it is necessary to use the valve, the water is drained off, and when out of use or at rest the water is turned on. The portion of the tank 4 projecting above the earth's surface, as well as the cover 7, is adapted to be inclosed by a suitable protective covering 9—for example, an earth mound or other suitable means—to protect the tank from fire. The cover or lid with a protective cover is to be used only while the well is not running, which in many cases may be weeks or months.

During the intervals of non-use the lid on the shell or tank and the protective covering thereof would supplement any accidental deficiency of water and keep the well in perfect safety from fire.

The pipe or casing 1 above the cut-off valve 3 communicates by means of the union 10 with a water-supply pipe 11, which extends through the tank 4 and is connected to a water-reservoir 12, arranged a suitable distance from the well. This reservoir is supported upon the standards 13, so that the water will have a sufficient fall. The water is fed to the pipe or casing 1 above the cut-off valve 2 for forcing the oil from that portion of the pipe above the valve 3 and also storing water in this portion of the pipe to prevent the entrance of any flame, spark, or other matter which may cause to ignite the oil or explode the well. At the same time if it should be possible that the oil as it leaves the pipe or casing 1 is ignited or on fire the water will tend to force the oil from the pipe, so that the fire will die out. Of course it will be evident that the valve 3 is closed. The reservoir 12 and standards 13 may be constructed of any suitable material, preferably of iron if they are near the well. The pipe 11 is provided with a suitable cut-off 14, so that the supply of water to the pipe or casing 1 can be regulated. The water is fed to the tank 4 by means of a supply-pipe 15, which communicates with the reservoir 12 and which is also provided with a cut-off 16 for regulating the supply of water to the tank 4. The pipes 11 15 a portion of their length extend downward from the reservoir 12 to beneath the earth's surface and then in a longitudinal manner toward the tank 4 and pipe or casing 1. The longitudinally-extending portion of the pipes 11 and 15 is generally arranged underground, although the same may extend along the surface of the earth when desired.

In the construction shown in Fig. 3 the oil pipe or casing projects above the tank 4, as at 17, and a suitable quantity of earth is placed within the tank 4, as at 6, to inclose a portion of the oil pipe or casing 1 and the pipes 11 and 12; otherwise the structure shown in Fig. 3 is the same as that shown in Figs. 1 and 2, the same reference-numerals being applied thereto, with the further exception that the cover 7 is preferably formed in two sections or with an opening on account of the extension of the oil-pipe.

The following advantages are obtained from the construction hereinbefore set forth: First, if the oil-well is on fire water can be turned on from the water-valves on the water-pipes at the reservoir and the fire extinguished, for the reservoir is out of reach of the fire; second, if the oil-pipe extends high above the earth the pipe can be filled with water by turning on the water from the reservoir; third, the tank can be filled with water while a fire is raging, and if the oil-pipe is short enough the fire will be extinguished; fourth, thus the well can be kept in a state of safety both while running oil and while at rest; fifth, the earth mound will furnish additional protection from heat; sixth, in the Beaumont oil-field the lots are very small and owned by different companies, and it might be difficult to extend a conduit over the limits of a lot, as in my copending application, Serial No. 79,586, filed October 22, 1901; seventh, this method will cost very little; eighth, above all other things it will be a perfect remedy against fire, and if properly handled it will serve the purpose of extinguishing a fire while burning in all its force; ninth, it may suit some wells better than the underground method given in my copending application, Serial No. 79,586, filed October 22, 1901.

It is thought the foregoing advantages can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will also be noted that minor changes may be made in the details of construction without departing from the general spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an appliance for protecting oil-wells, the combination with the oil-well pipe or casing, of a water-tank surrounding the upper portion thereof, a protective covering for the said tank, a reservoir, and suitable connections between the said reservoir and the tank and oil-well pipe or casing.

2. In an appliance for protecting oil-wells from fire, the combination with the oil-well pipe or casing, a water-tank surrounding the upper portion of said pipe or casing and adapted to extend below and project above the earth's surface, a protective covering for the said tank, a reservoir, a pipe connection between the reservoir and the said oil-well pipe or casing, and a pipe connection between the reservoir and the said tank.

3. In an appliance for protecting oil-wells from fire, the combination with the oil-well pipe or casing, of a water-tank adapted to surround the upper portion of said pipe or casing, and a protective covering for the said tank.

4. In an appliance for protecting oil-wells from fires, the combination with an oil-well pipe or casing and a cut-off valve suitably arranged therein, of a tank surrounding the upper portion of said oil-well pipe or casing, means for supplying water to the said tank, and means for supplying water to the pipe or casing above the cut-off valve.

5. In an appliance for protecting oil-wells from fires, the combination with an oil-well pipe or casing and a cut-off valve suitably arranged therein, of a tank surrounding the upper portion of said oil-well pipe or casing, means for supplying water to the said tank, means for supplying water to the pipe or casing above the cut-off valve, and a protective covering for the said tank.

6. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank surrounding the upper portion thereof, and means for supplying water to the said tank.

7. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank surrounding the upper portion thereof, means for supplying water to the said tank, and a protective covering for the said tank.

8. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a water-tank suitably surrounding a portion of the pipe or casing, a cover for the said tank, means for supplying water to the said tank, and a protective covering for the said tank.

9. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank suitably surrounding a portion of the pipe or casing, means for supplying water to the tank, and a protective covering for the tank.

10. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank suitably surrounding a portion of the said pipe or casing, a cut-off valve connected to said pipe or casing, means for suitably supplying water to said pipe or casing, and means for suitably supplying water to the said tank.

11. In combination, an oil-well pipe or casing, a cut-off valve arranged therein, a protecting means surrounding the upper portion of said pipe and in which is mounted the said valve, and means for suitably supplying water to said protecting means and said pipe.

12. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a protecting means surrounding the upper portion of said pipe, and means for supplying water to the said protecting means.

13. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a protecting means surrounding the upper portion of said pipe, and a quantity of earth within the said protecting means.

14. In combination, an oil-well pipe or casing, a cut-off valve arranged therein, a protecting means surrounding a portion of said pipe, means for suitably supplying water to said protecting means in said pipe, and a quantity of earth arranged within the protecting means.

15. In combination, an oil-well pipe or casing, a cut-off valve therefor, a shell surrounding a portion of the pipe, means for supplying water to the pipe and shell, a protective covering for the shell, and a quantity of earth mounted within the shell.

16. In an appliance for protecting oil-wells from fires, the combination with an oil-well pipe or casing, of a shell surrounding the same, a protective covering for the shell, and a quantity of earth suitably arranged within the shell.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES M. COCHRAN.

Witnesses:
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JNO. P. KNIGHT.