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HEATER FOR OIL WELL TUBING

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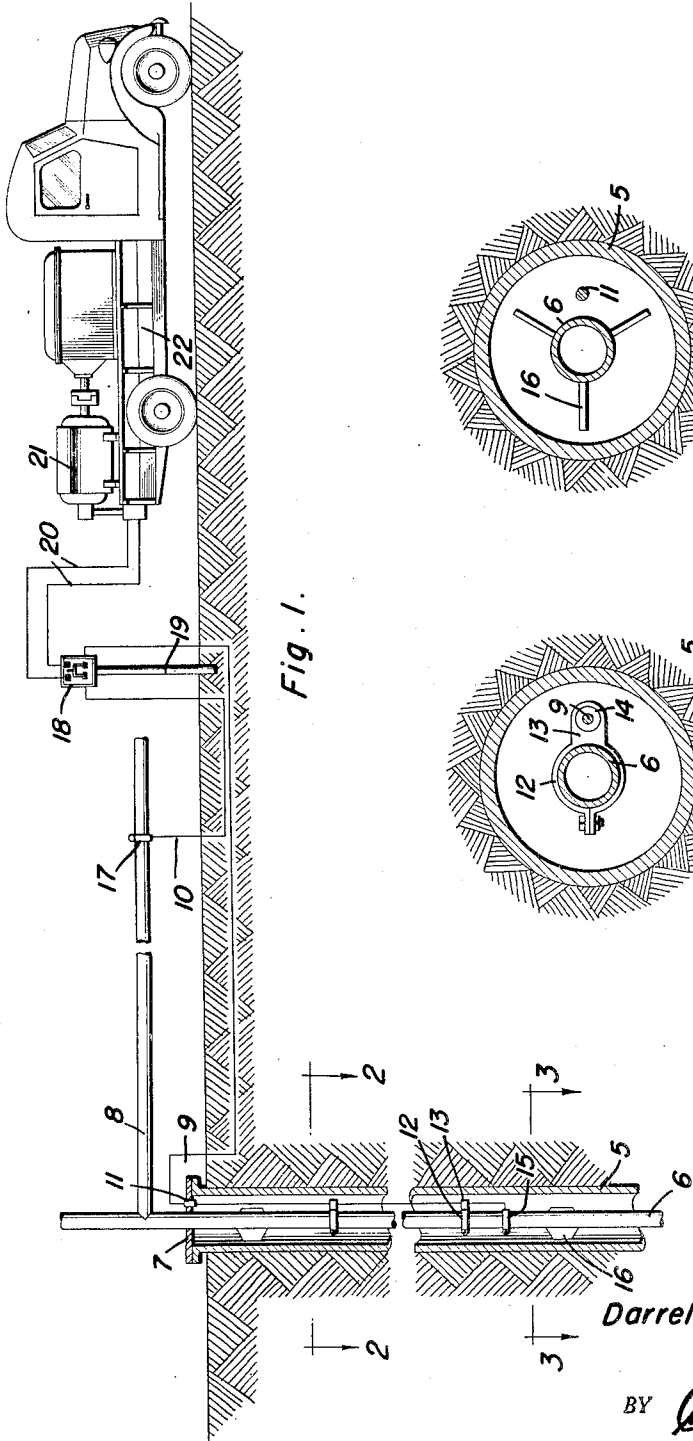


Fig. 1.

Fig. 3.

Fig. 2.

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HEATER FOR OIL WELL TUBING

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2 Claims. (Cl. 219—39)

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The present invention relates to new and useful improvements in heaters for oil wells and more particularly to an electrical resistance heater for the upper portion of an oil well tubing and for the portion of the flow line immediately adjacent thereto.

An important object of the invention is to provide a heater for oil well tubing to facilitate flow of oil from the well and embodying a resistance heater extending a predetermined distance along the tubing and flow line leading therefrom the heater being connected to a portable generator to permit moving of the generator from one well to another for heating the tubing thereof, as conditions require.

A still further object is to provide an apparatus of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to install in operative position and which is otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary vertical sectional view of the upper end of an oil well casing and tubing and showing the heater mounted in position thereon and;

Figures 2 and 3 are enlarged transverse sectional views taken respectively on the lines 2—2 and 3—3 of Figure 1.

Referring now to the drawing in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention the numeral 5 designates a well casing in which a tubing 6 is positioned to extend upwardly through the head 7 of the casing. A flow pipe or line 8 leads from the upper portion of tubing 6 to a tank or reservoir for collecting the oil in the usual manner.

The heater comprising the subject matter of the present invention consists of a pair of electric cables 9 and 10, the cable 9 entering the casing 5 at head 7 with a suitable insulator bushing 11 provided in the head for the cable and sealed to hold back gas pressure in the casing 5. The cable 9 extends downwardly in the casing 5 in spaced relation from the tubing 6 by means of clamps 12 secured to the tubing and having arms 13 projecting outwardly therefrom and provided with insulation sleeve 14 through which the

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cable 9 extends. The cable 9 extends downwardly in the casing 5 parallel to tubing 6 for a distance of approximately 500 feet and its lower end is brazed, clamped or otherwise suitably secured directly to the tubing 6 as indicated at 15.

The portion of the cable 9 positioned in the casing 5 is protected from damage by means of metal fins 16 suitably secured in a vertical position to the tubing 6 which hold the tubing substantially at the center of the casing.

The second cable 10 is brazed, clamped or otherwise suitably secured to the flow pipe 8 at a point indicated at 17 at a point approximately 500 feet from its junction with the tubing 6.

The cables 9 and 10 extend under ground from the well to a switch 18 supported on a post or other suitable structure 19 at a suitable distance from the well and cables 20 lead from the switch to a generator 21 of a suitable capacity mounted on a truck 22, and preferably of 400 volts, 3000 amperes and 3000 cycles to generate heat rapidly.

In the operation of the device the upper portion of tubing 6 and the adjacent end of flow pipe 8 between the connections 15 and 17 for cables 9 and 10 respectively constitute the heater, a resistance being set up to heat the affected portion of the tubing and flow pipe 8.

Through the provision of the portable generator 21 the same may be moved to other wells similarly equipped with the resistant heater to supply a desired heat to the tubing as conditions require.

In view of the foregoing description taken in conjunction with the accompanying drawing it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain change fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

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

1. An oil well heater comprising the combination of a well casing and tubing positioned centrally therein, said tubing having a flow pipe connected to its upper end, and a pair of circuit wires connected respectively to the tubing and to the flow pipe, one of said wires being connected to the tubing at a point below the surface of the ground and the other of said wires being

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connected to the flow pipe at a point outwardly from the tubing to connect part of the tubing and part of the flow pipe in a circuit with the wires.

2. An oil well heater comprising the combination of a well casing having a tubing therein and a flow pipe leading from the upper end of the tubing, a pair of circuit wires connected respectively to the tubing at a point below the surface of the ground and connected to the flow pipe at a point outwardly from the tubing, one of said wires extending vertically in the casing, insulation means carried by the tubing holding said one wire spaced from the casing and from the

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tubing and spacers carried by the tubing holding the tubing centrally in the casing.

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