Oct. 2, 1945. W. B. RHEES 2,386,061

OIL TREATER

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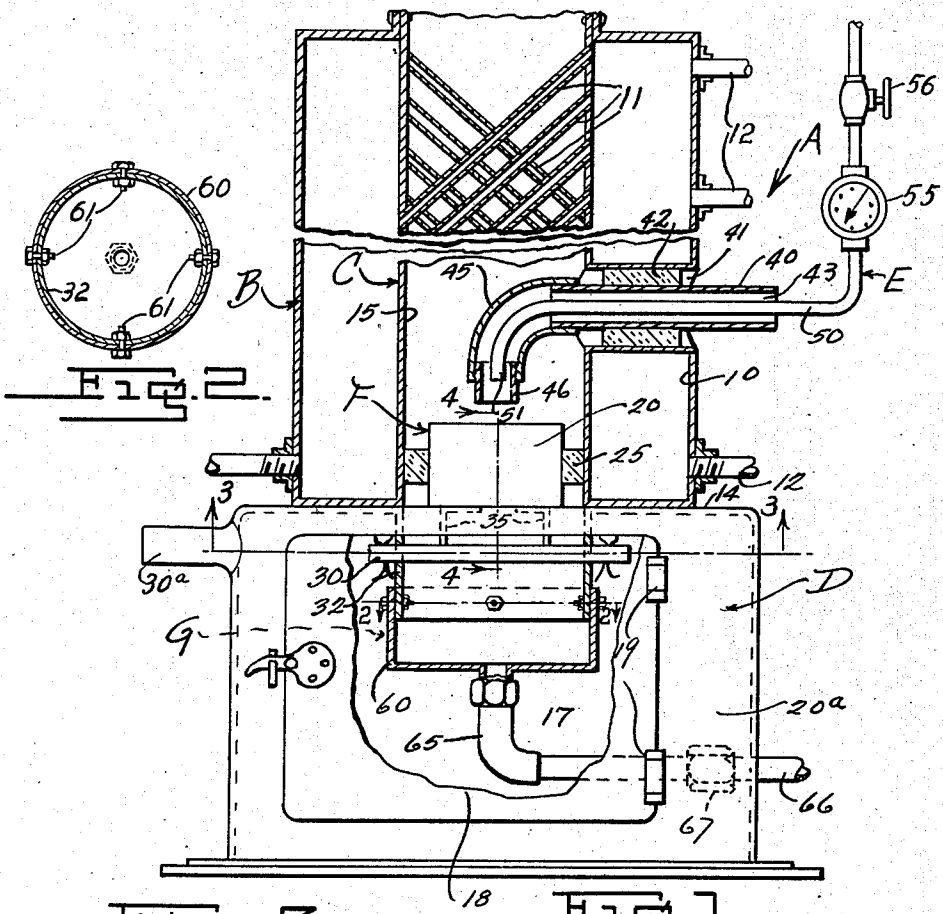


Fig. 2.

Fig. 1.

Fig. 3.

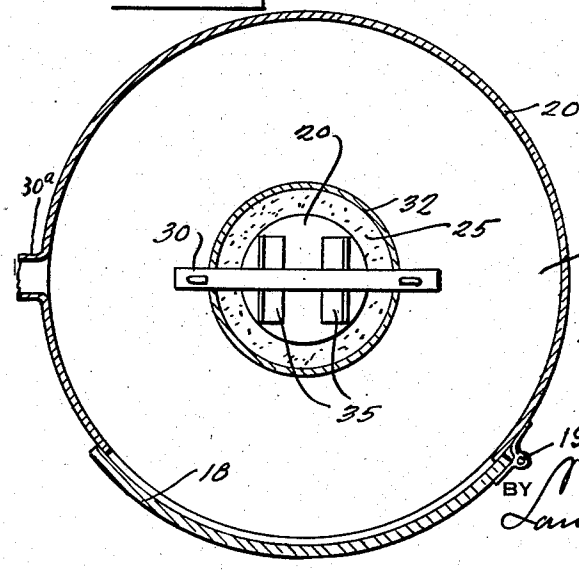
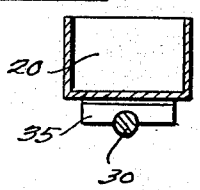


Fig. 4.



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OIL TREATER

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9 Claims. (Cl. 122—177)

This invention relates to improvements in heaters, particularly well adapted for the heating of oil.

The primary object of this invention is the provision of improved burner means for heaters, boilers and the like, adapted to utilize as the heating medium fuel oil which is fed without forced draft to a burner pot; the improved burner assembly and fuel feed means being readily accessible for cleaning and readily removable for replacement.

A further object of this invention is the provision of an improved oil burner assemblage for boilers, oil heaters and the like, having an improved fuel oil overflow.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawing, forming a part of this specification, and wherein similar reference characters designate corresponding parts thruout the several views,

Figure 1 is a vertical sectional view taken thru the improved oil heater.

Figure 2 is a transverse cross sectional view taken substantially on the line 2—2 of Figure 1.

Figures 3 and 4 are cross sectional views taken substantially on the respective lines 3—3 and 4—4 shown in Figure 1 of the drawing.

In the drawing, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the latter A may generally designate the improved heater which may consist of the boiler or heating receptacle B having a main heat flue C associated as a part thereof; the heater receptacle being supported upon a suitable casing support D. In association with the heater, there is provided an improved fuel feed assemblage E; improved burner assemblage F and an improved fuel overflow G.

The boiler or container B may be of any approved nature. However, it is preferably of the vertically disposed cylindrical type adapted to receive oil to be heated, altho the principal features of this invention are as well adaptable for boilers of any type. The receptacle B is provided with a compartment 10 adapted to receive the oil to be heated, and the flue C of course extends vertically thru the receptacle B and may be provided with criss-cross piping 11 so that the oil may readily pass from one side of the receptacle B to the other for heating. Suitable outlets 12 may be provided in the container B, for whatever purpose desired.

The foundation D is in the form of a cylindrical casing which supports the receptacle B and its flue construction C thereon. It has a top wall 14 provided with an opening aligning with the flue passageway 15. The compartment 17 of the foundation casing D is accessible thru an opening having a closure 18 hingedly connected at 19 upon the side wall construction 20a of the casing D, as shown in Figure 1 of the drawing.

Referring to the burner assemblage F, the same preferably includes a burner pot 20 detachably mounted in the lower passageway 15 of the flue C, immediately above the top wall 14 of the foundation or base D, and held therein in a detachable relation by means of suitable compressed insulation 25, such as rope asbestos. The main support for the pot 20 is furnished by means of a detachable pin or rod 30, supported transversely upon a depending skirt 32 which is formed integral or rigid with the top wall 14 of the foundation D, and is substantially a continuation of the flue C. Suitable cotter pins may hold this pin 30 in place, but it can be withdrawn sidewise into an extension 30a of the wall 20a, in order to drop the pot 20 out of position. Of course the insulation 25 mainly seals the flue passageway. If desired, suitable angle pieces 35 may be welded or otherwise secured upon the bottom of the pot 20; the same being recessed to receive the supporting pin 30, as shown in Figures 1 and 5 of the drawing.

The fuel feed assemblage E is of novel construction. It includes a four inch air flue or pipe 40, horizontally extending thru a suitable opening 41 in the heater wall; the pipe being supported in this opening 41 by means of compressed insulation 42 of any approved nature and which is readily removable. The air flue 40 and an attached elbow 45 provides an air passageway 43 communicating with the passageway 15 of the flue C. The elbow 45 extends downwardly and has a preferably detachable outlet end pipe 46 axially disposed in the flue passageway 15 immediately above the open top of the pot 20. A preferably one quarter inch fuel feed pipe 50 extends axially thru the air pipe 40 and has a preferably right-angled turned end in the elbow 45, with a nozzle exit 51 immediately over the open end of the pot 20. Oil drops from this pipe into the pot. The pipe 50 may be supported in any approved manner (not shown) and preferably has a gauge 55 thereon and a valve 56, in accordance with well known construction.

In combination with my readily accessible and removable fuel feed and burner assemblages, I provide a fuel overflow assemblage G. This con-

sists of a receptacle portion 60 detachably bolted at 61 to the depending skirt portion 32. In its bottom wall the overflow receptacle 60 is provided with a tubular extension to which an elbow 65 is detachably connected. An outlet pipe 66 for overflow of oil is detachably connected to this elbow 65. The pipe 66 may be provided with a detachable coupling nut 67 within the compartment of the foundation D to facilitate disconnection of the overflow receptacle and connected parts.

It is readily apparent from Figure 3 of the drawing that the entire burner assemblage, as well as the overflow assemblage, can be readily disconnected and removed thru the opening in the base D controlled by the closure 18. The fuel pipe 50 and air flue therefor may also be readily removed, since the insulation 42 is of a compressible and removable nature.

The device is primarily adapted for use in oil fields where gas is not available for heating. Of course heaters utilizing fuel oil under forced draft with atomization are preferable. However, my burner, overflow and fuel feed assemblage have been provided with the idea of economizing in initial cost and maintenance of apparatus, as well as economy in fuel consumption. I have found, with the fuel feed arrangement shown, that fuel will be efficiently fed to the retort and will be almost wholly consumed therein. Since the burner pot and air and oil feed lines will frequently need replacement, due to burning, I have provided means by which they can be removed with facility and replaced with but little effort.

Various changes in the shape, size and arrangement of parts may be made to the form of invention herein shown and described, without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. In a heater the combination of a container providing a chamber therein for receiving oil and the like to be heated, said container having a vertical flue passageway therethru for travel of combustion gas thru the container, a base receptacle for the container having the said passageway extended downwardly thereinto, a burner detachably mounted in said flue passageway, a fuel feed and air draft assemblage detachably mounted upon said heater and extending into the flue passageway above the burner, and means in the base receptacle for receiving and draining oil overflowing from the burner to a location remote from the burner.

2. In a heater the combination of a heating receptacle having a flue passageway therethru, a burner in the flue passageway, said receptacle having a transverse opening thru a side thereof, an air flue extending thru said opening, insulation means supporting the air flue in said opening and closing off said opening, with the air flue extending into the flue passageway above the burner, and a fuel feed line materially smaller than said air flue extending thru the air flue for dropping oil into the burner.

3. In a heater the combination of a heating receptacle having a passageway for combustion gas therethru, a foundation casing upon which the heating receptacle is mounted having a chamber therein and a depending skirt in the chamber continuing the gas passageway into said chamber of the foundation, a detachable pin supported by said skirt across the passageway therein, a burner pot detachably supported upon said pin and opening upwardly in the gas passageway, insulation blocking off said passageway surrounding said pot, means for dropping fuel into the pot from above the same, and means for feeding air into the gas passageway above the pot.

4. In a heater the combination of a heating receptacle having a passageway for combustion gas therethru, a foundation casing upon which the heating receptacle is mounted having a chamber therein and a depending skirt in the chamber continuing the gas passageway into said chamber of the foundation, a detachable pin supported by said skirt across the passageway therein, a burner pot detachably supported upon said pin and opening upwardly in the gas passageway, insulation blocking off said passageway surrounding said pot, means for feeding air into the gas passageway above the pot, a detachable overflow receptacle connected with said skirt below the pot, and detachable conduit means for conveying oil in the last mentioned receptacle away from said foundation.

5. In a heater the combination of a heating receptacle having a passageway for combustion gas therethru, a foundation casing upon which the heating receptacle is mounted having a chamber therein and a depending skirt in the chamber continuing the gas passageway into said chamber of the foundation, a detachable pin supported by said skirt across the passageway therein, a burner pot detachably supported upon said pin and opening upwardly in the gas passageway, insulation blocking off said passageway surrounding said pot, means for feeding air into the gas passageway above the pot, a detachable overflow receptacle connected with said skirt below the pot, and detachable conduit means for conveying oil in the last mentioned receptacle away from said foundation, said foundation having an opening therein controlled by a closure, the closure being sufficiently large to remove the pot and overflow receptacle therethru.

6. In a heater, the combination of a casing providing a fluid receiving compartment therein, a flue extending thru the casing and its compartment and having a passageway therein, an oil burning pot in the lower end of the flue at the foot of the compartment of said casing and located in the passageway of said flue, insulation surrounding said pot and shutting off the flue passageway at the lower end thereof, means for dropping oil into said pot from thereabove, and means to supply air adjacent said pot to facilitate combustion.

7. In a heater for oil and the like, the combination of a casing providing a fluid receiving compartment therein, a flue extending axially thru the casing and its compartment and having a gas passageway therein, a base receptacle below said casing having a compartment therein, a burner pot detachably supported in the lower end of the flue passageway, means accessible from the compartment of the base for detachably supporting said pot so that it can be lowered into the base compartment, and a detachable overflow receptacle in the base compartment.

8. In a heater, the combination of a receptacle for receiving oil and the like to be heated having a flue therein, a burner receptacle, pin means detachably supported by and extending into the flue for detachably supporting the burner receptacle thereupon in the lower end of said flue, means surrounding the burner receptacle and

closing off said flue below the said receptacle, and means for feeding air and fuel to the burner receptacle.

9. In a heater, the combination of a receptacle for receiving oil and the like to be heated having a flue therethru, a burner receptacle, means detachably supporting the burner receptacle in the lower end of said flue, means surrounding said receptacle and closing the lower end of the flue, an air pipe extending thru the side of the receptacle and terminating at a point above the receptacle, and a fuel feed pipe extending thru the air pipe and having an outlet for the dropping of oil into said receptacle and not appreciably restricting the passageway to said air line for flow of air therethru.

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