

M. A. HEMSING AND M. H. CHRISTOPHERSON.

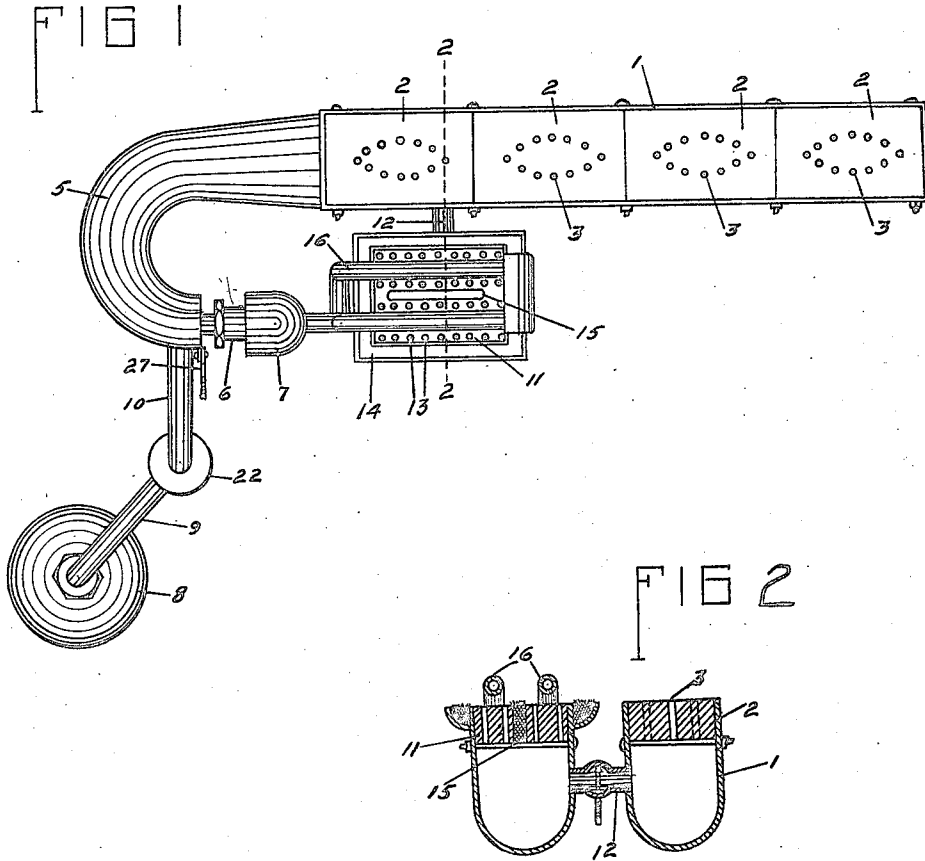
PRIMING DEVICE FOR HEATING SYSTEMS.

APPLICATION FILED APR. 26, 1920.

1,436,038.

Patented Nov. 21, 1922.

2 SHEETS—SHEET 1.



INVENTORS
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FIG 3

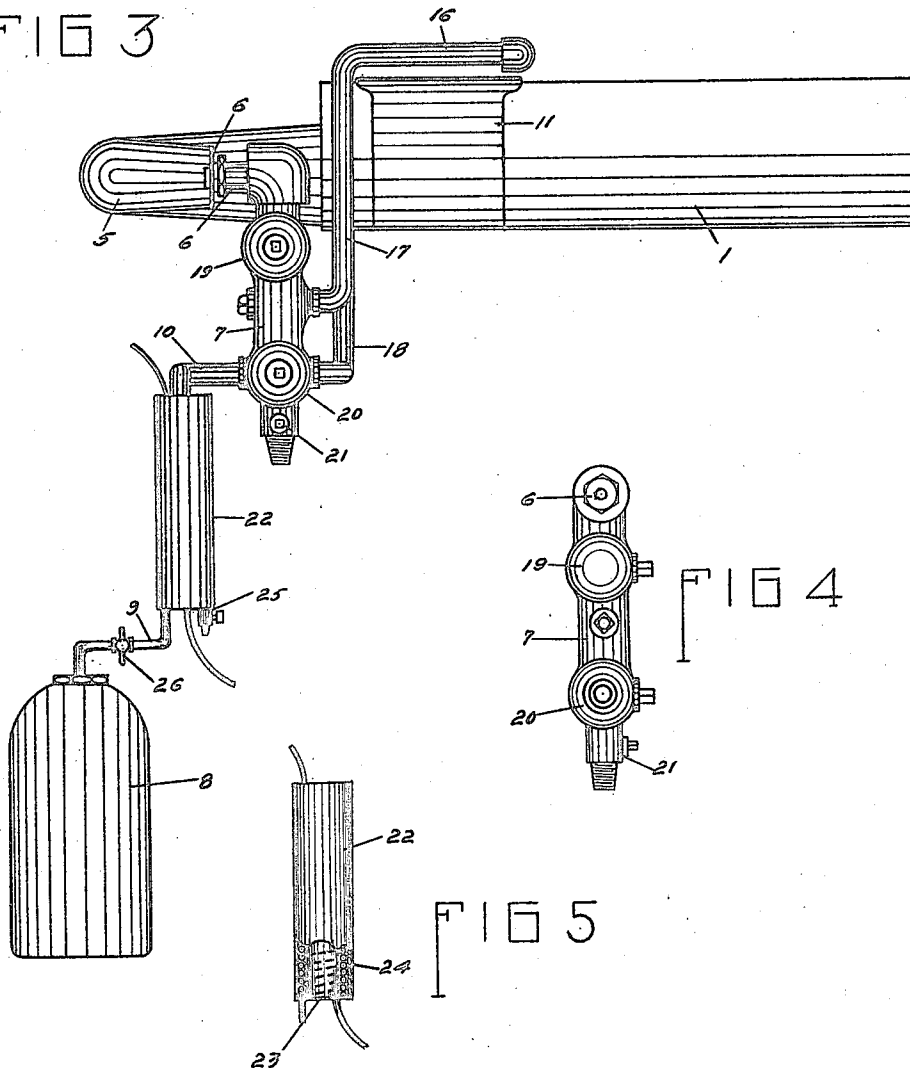


FIG 4

FIG 5

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UNITED STATES PATENT OFFICE.

MAURICE A. HEMSING AND MARTIN H. CHRISTOPHERSON, OF DAVENPORT, IOWA.

PRIMING DEVICE FOR HEATING SYSTEMS.

Application filed April 26, 1920. Serial No. 376,798.

To all whom it may concern:

Be it known that we, MAURICE A. HEMSING and MARTIN H. CHRISTOPHERSON, citizens of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in a Priming Device for Heating Systems, of which the following is a specification.

Our invention has reference to priming devices for heating systems, and relates more specially to systems of that character which employ fuel oil as a heat producer, and which oil must first be transformed into a gas or vapor before being sufficiently inflammable for the use for which it is intended.

Our invention is also more particularly designed for use in connection with multiple burner systems, such as are employed in large ovens, furnaces, heating plants, and other places, but it is not limited to such a use. In heating systems of the kind mentioned it is customary to convert the fluid oil into a vapor by means of an auxiliary heater, or generator, which is provided with a small quantity of inflammable oil, and ignited, the heat therefrom operating to vaporize the oil in some part of the main system associated with the generator. This process is slow and frequently inconvenient, on account of the difficulty in getting at that part of the heating system to which the vapor is to be furnished.

The chief purpose of our invention is to provide a means whereby the gas may be easily and quickly generated, by use of an electrical priming outfit, associated with the main heating system in such a way as to furnish an initial supply of vapor therefor, until such time as the usual generating system shall be in complete operation. By this means the method now in use of using a quantity of oil for priming purposes is eliminated.

Other purposes and advantages of our invention will more fully appear from the following specification, reference being had to the drawings accompanying the same, in which the preferred embodiment of the invention is illustrated.

In said drawings:

Fig. 1 is a plan view of the invention.

Fig. 2 is a cross-section on the broken line 2—2 of Fig. 1.

Fig. 3 shows the device in side elevation.

Fig. 4 is a front view of the feed-pipe 7, detached.

Fig. 5 is a detached view of the generator 22.

Similar reference characters indicate corresponding parts throughout the several figures.

1 represents a conduit of inverted U-shaped form, in which is supported a plurality of burners 2. One end of said conduit is closed, and obviously it can be constructed of any practical length, and may contain as many of the burners as may be desired. Each of the burners 2 is provided with perforations 3, which permit the passage of a sufficient amount of vapor to support a flame of desired intensity.

Connected with the open end of the conduit 1 is a goose-neck 5, adjacent to the open end of which is the nozzle 6 of a feed-pipe 7, which is connected with a supply tank 8 by means of pipes 9 and 10 and intermediate devices hereinafter more fully set forth.

Supported adjacent to that end of the conduit 1 which is provided with the goose-neck connection is an auxiliary burner 11, the tubing of which is connected with the conduit by a pipe 12. Said burner is provided with perforations 13 for passage of the vapor, and is surrounded by a trough 14, adapted to hold inflammable liquids. Centrally of said burner is a wicking 15. By this arrangement, in case the other generating devices should be out of order, the auxiliary burner can be used as a primer, by supplying the same with a quantity of oil, and igniting the same. Just above the burner 11 is a coil 16, one arm of which is projected downwardly into a pipe 17, connected with the feed-pipe 7 at a central point, and the other arm of said coil is projected downwardly into a pipe 18, connected with the pipe 7 near the lower end thereof. The pipe 7 is provided with shut-off valves at 19 and 20, and at the lower end thereof is a drain-cock 21.

Supported between the pipes 9 and 10 is an electric generator 22, containing a resistance coil 23, to which an electric current is furnished in any desired manner. Surrounding the coil 23 is a tubular coil 24, preferably in spiral form, the lower end of which is connected with the pipe 9 and the upper end with the pipe 10. By means of compressed air or other pressure in the tank 8

the fuel oil in such tank is forced upwardly through the coil 24 into the feed-pipe 7. At the lower end of the member 22 is a drip-pipe 25, controlled by a suitable cock, and the pipe 9 is provided with a check-valve 26.

To operate the device, the electric current connected with the generator 22 is turned on, and the coil 23 thoroughly heated. The valve 19 is closed, and the valves 20 and 24 opened, permitting a forced feed of the oil through the pipes 9 and 10, pipe 7, and coil 16. In its movement through the generator 22 the oil is soon heated, and converted into an inflammable vapor, such fact being disclosed at the lower end of the pipe 7, from which the oil has been permitted to drip. The cock 21 is then closed and the valve 19 opened, permitting the vapor to pass through the nozzle 6 into the goose-neck 5 and conduit 1. When such conduit is sufficiently supplied with the gas the same is ignited at the end of the conduit nearest the goose-neck, which would ordinarily be most easy of access. The flame then travels from one burner to another until all are lighted.

To prevent escape of the vapor at the outer end of the goose-neck, such end is provided with a shutter 27, pivoted to one edge thereof, and adapted to close about the reduced end of the nozzle 6.

After the heating system is in full operation the electric current can be shut off, and the burner 11 relied upon to keep up the generating process. After the electric generator is shut off the oil passes upwardly through such generator, through the bottom of the pipe 7 into the pipe 18 and coil 16, where it is converted into vapor and returns through the pipe 17 to the feed-pipe, and thence through the nozzle 6 to the goose-neck.

In case the generator 22 is for any reason inoperative, the burner 11 is provided with a quantity of inflammable liquid and ignited. Such burner then acts as a primer, and the vapor is generated in the first instance thereby. This method requires considerable more time, however. If desired, the generator 22 may be used continuously for producing the gas.

When it is desired to extinguish the flame in the burners this is accomplished by closing the valve 26, interrupting the movement of the oil. The cock 25 is then opened, permitting the products of condensation to escape from the generator.

What we claim as our invention and desire to secure, is:

1. In a device of the class described, the

combination of a heating system; a source of fuel supply; means of communication between said source of supply and said heating system; and a generator, comprising a coil adapted to be electrically heated; and a tubular coil extending spirally around said generator coil, and forming a part of said means of communication.

2. In a device of the class described, in combination with a conduit having a suitable inlet, and a plurality of burners mounted continuously therein; an auxiliary gas burner connected with said conduit, and adapted to contain a supply of inflammable liquid; a feed-pipe in communication with said inlet; a pipe coil projected from said fuel pipe into a position in proximity to said auxiliary burner, so as to receive heat therefrom; a fuel oil reservoir; means of communication between said reservoir and said feed pipe; and an electric heating device interposed in said means of communication.

3. In a device of the class described, in combination with a conduit provided with a goose-neck connection, and a battery of burners mounted in said conduit, an auxiliary burner connected with said conduit; a feed pipe in proximity to said goose-neck, and having a nozzle extending into the same; a pipe coil projected from said feed-pipe to a point above said auxiliary burner; a fuel oil reservoir, in communication with said feed-pipe; and an electrical heating device interposed between said reservoir and said feed-pipe, adapted to convert a supply of oil into vapor in its passage from said reservoir to said chamber.

4. In a device of the class described, in combination with a conduit provided with a horn-shaped inlet, and a plurality of burners mounted in said conduit; an auxiliary burner connected with said conduit; a feed-pipe having a nozzle opening into said inlet, and provided with a drip-cock at its lower end; a pipe coil projected from said feed-pipe to a point above said auxiliary heater; a swinging closure for the opening to said inlet; a fuel oil reservoir; a pipe connection between said reservoir and said feed-pipe; and an electrical priming device interposed in said pipe connection, and adapted to furnish heat to a supply of oil in its passage therethrough, to convert the same into vapor.

In testimony whereof we affix our signatures.

MAURICE A. HEMSING.

MARTIN H. CHRISTOPHERSON.