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HEATER

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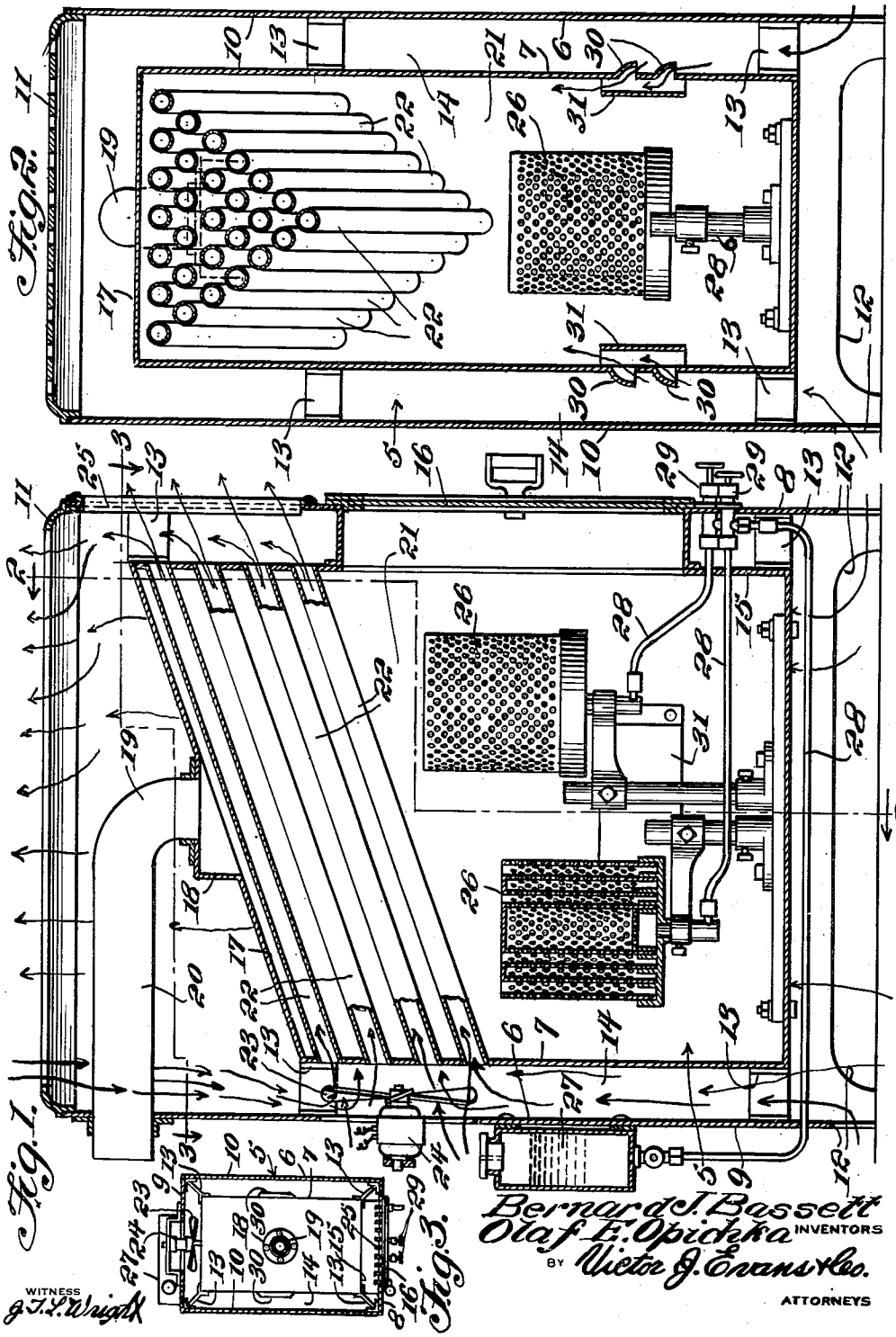


Fig. 2.

Fig. 1.

Fig. 3.

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HEATER

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2 Claims. (Cl. 126—110)

Our invention relates to heaters and more particularly to oil heaters.

One of the principal objects of our invention is to provide a heater wherein, through the use of oil as fuel, air passing through the heater will be subjected to maximum radiating surface for heating thereof in a minimum period of time and with the least possible fuel consumption, the heater in its entirety being of novel construction.

Another object of our invention is to provide a heater of the above described character which is simple in construction, durable in use, efficient in operation and economical in manufacture.

Other objects and advantages will be apparent from the following description, appended claims and annexed drawing.

Referring to the drawing wherein like reference characters designate like parts throughout the several views:

Figure 1 is a vertical sectional view of our invention.

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

Figure 3 is a detail sectional view, on a reduced scale, taken on the line 3—3 of Figure 1.

In practicing our invention we provide a heater 5 comprising outer and inner spaced shells 6 and 7 respectively, the outer shell being provided with front, rear and side walls 8, 9 and 10 respectively. A detachable grill cover 11 closes the top of the outer shell 6 while the front, rear and side walls are provided with depending legs at their jointures defining air openings 12 for admitting air upwardly about the inner shell 7 as clearly illustrated in Figures 1 and 2 of the drawing. The inner shell 7, at the corners thereof, is provided with diagonally extending spacers 13 secured within the corners of the outer shell and maintaining said inner shell in spaced relation with respect to the outer shell and providing about the inner shell an air passage 14. The front wall 15 of the inner shell is formed with an opening communicating with a similar opening in the front wall 8 of the outer shell with the latter being normally closed by a door 16.

The inner shell is also formed with an inclined top wall 17, the latter extending upwardly and forwardly and provided with a centrally disposed dome 18 connected to the lower end of an elbow 19 provided on the inner end of a horizontally disposed pipe 20, the latter extending outwardly through the rear wall 9 of the outer shell whereby to convey fumes, gases and the like from within the inner shell, it being understood that the inner shell forms a heating chamber 21.

Subjacent the top wall 17, the inner shell is provided with a plurality of inclined air tubes 22 extending upwardly and forwardly with respect to the outer shell and having front and rear open ends communicating with the passage 14 as clearly illustrated in Figure 1 of the drawing. The rear wall 9 of the outer shell has mounted thereon, rearwardly of the open ends of the tubes 22 and within the passage 14, a fan 23, the latter being equipped with an electric motor 24 for operating said fan. Air openings are arranged in the rear wall postjacent the fan blades for effecting circulation of air through the tubes 22. Prejacent the front ends of the tubes 22, the front wall 8 is provided with a grill 25 whereby air is introduced into a room without the heater.

Mounted on the bottom wall of the inner shell 7 is a pair of oil burners 26, one being arranged slightly above the other to effect equal spacing with respect to the front and rear ends of the tubes. The rear wall 9 of the outer shell has mounted on the outside thereof an oil reservoir 27 for supplying the burners 26 with fuel through the medium of pipes 28, the latter being equipped with adjusting valves 29 for controlling the flow of oil to the burners in the usual manner. The side walls of the inner shell 7 subjacent the tubes are formed with louvers 30 whereby air is admitted to said inner shell from the passage 14.

Deflecting plates 31 are secured to the inner sides of the side walls of the inner shell 7 in such position as to provide baffles spaced inwardly from the louver apertures so that the air entering therethrough is diverted from the heaters, that is to prevent direct flow of the incoming air against the burners.

From the foregoing it will be apparent that air circulating through the tubes 22 will be heated by the burners 26 and discharged into a room through both the grill 25 and grill cover 11. It will also be apparent that our novel form of heater subjects the air to maximum radiating surface for heating the same in a minimum period of time, thereby effecting an economy in fuel consumption.

Without further elaboration, the foregoing will so fully explain the invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service. Moreover, it is not indispensable that all the features of the invention be used conjointly since they may be employed advantageously in various combinations or sub-combinations.

It is obvious that the invention is not confined to the herein described use therefor as it may be

utilized for any purpose to which it is adaptable. It is therefore to be understood that the invention is not limited to the specific construction as illustrated and described, as the same is only illustrative of the principles of operation, which are capable of extended application in various forms, and that the invention comprehends all construction within the scope of the appended claims.

What we claim is:

1. A heater of the character described comprising a rectangular shaped casing shell having inlet apertures in the bottom and outlet slots in the top thereof, a second rectangular shaped shell mounted within the casing shell having the top, bottom and side walls spaced from the casing shell to form a heating chamber, an outlet pipe connected to the top of the inner shell and extending through an opening in the casing shell for the discharge of heated air and gases from the heating chamber, a plurality of air conducting tubes mounted in inclined position in the upper portion of the heating chamber and opening into the passages formed between the front and rear walls of the said shells, the said tubes being disposed so that their rear inlet ends are at a medial point with reference to the height of the casing shell while their forward outlet ends are in a position adjacent the top of the said casing shell, the said casing shell having air inlet openings in the rear wall in horizontal registration with the inlet ends of the tubes and having outlet openings in the front wall in registration with the outlet ends of the tubes, a motor driven blower fan mounted vertically in the rear passage between the shells in position to force air through the tubes from the rear wall inlet openings and the rear passage, and means mounted within the lower portion of the heating chamber for heating the air circulating through the said tubes, the said heating chamber having air inlet apertures in the lower portions of opposed side walls thereof.

2. A heater of the character described comprising a rectangular shaped casing shell having inlet apertures in the bottom and outlet slots in the top thereof, a second rectangular shaped shell mounted within the casing shell having the top, bottom and side walls spaced from the casing shell to form a heating chamber, an outlet pipe connected to the top of the inner shell and extending through an opening in the casing shell for the discharge of heated air and gases from the heating chamber, a plurality of air conducting tubes mounted in inclined position in the upper portion of the heating chamber and opening into the passages formed between the front and rear walls of the said shells, the said tubes being disposed so that their rear inlet ends are at a medial point with reference to the height of the casing shell while their forward outlet ends are in a position adjacent the top of the said casing shell, the said casing shell having air inlet openings in the rear wall in horizontal registration with the inlet ends of the tubes and having outlet openings in the front wall in registration with the outlet ends of the tubes, a motor driven blower fan mounted vertically in the rear passage between the shells in position to force air through the tubes from the rear wall inlet openings and the rear passage, and a plurality of oil burners mounted in the lower portion of the heating chamber below the tubes for heating the tubes and the air circulating therethrough, the said heating chamber having louver openings in the lower portions of its opposed side walls for feeding air into the heating chamber and having baffles disposed inwardly of the louver apertures to deflect the air entering therethrough from the burners.

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