Oct. 3, 1939. E. ESSON 2,174,572

HOT HAIR HEATER

Original Filed Jan. 17, 1938

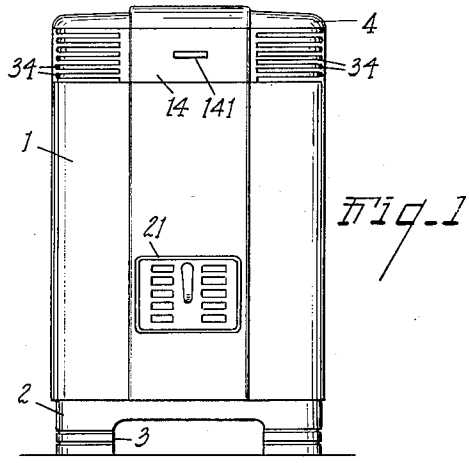


Fig. 1

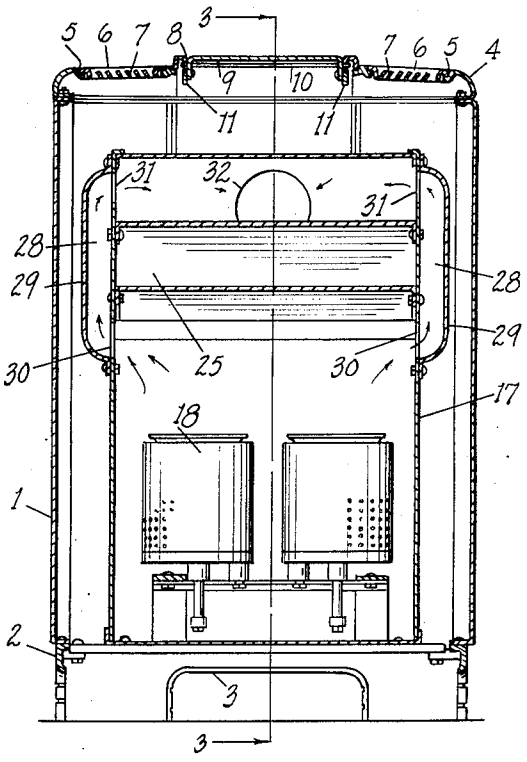


Fig. 2

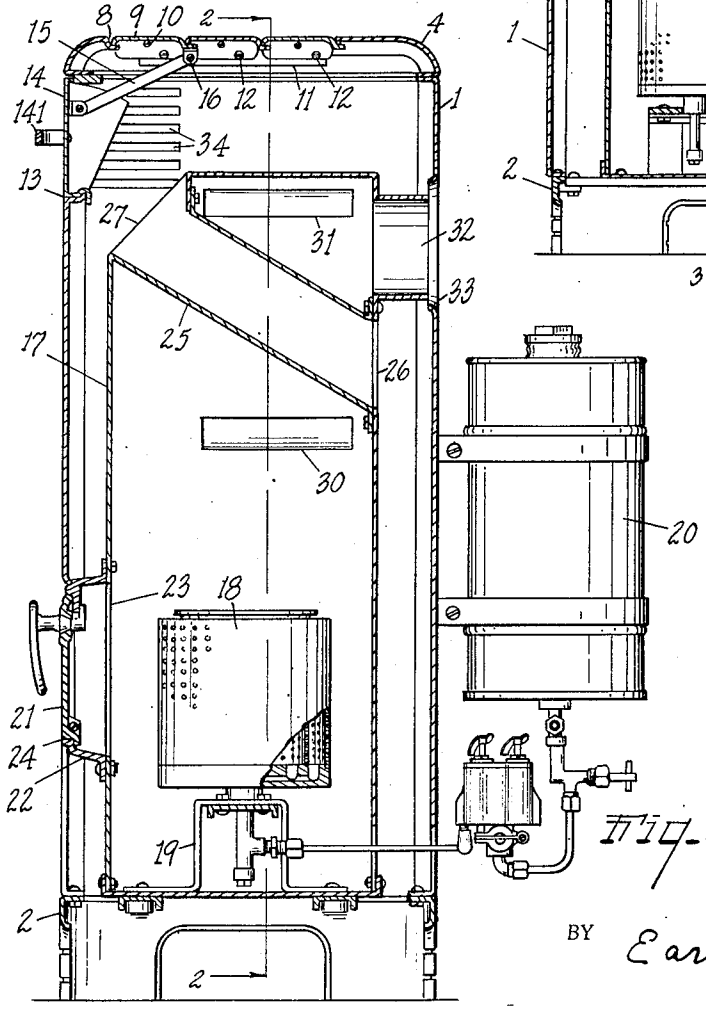


Fig. 3

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HOT AIR HEATER

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Original application January 17, 1938, Serial No. 185,306. Divided and this application May 14, 1938, Serial No. 207,935

3 Claims. (Cl. 126—67)

This invention relates to improvements in hot air heaters.

The main objects of this invention are:

First, to provide a cabinet type of hot air heater which is quite compact and the same time is highly efficient.

Second, to provide a hot air heater of the type described which is efficient in that it circulates a relatively large volume of air through the hot air casing of the heater.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a front elevation of a hot air heater of the cabinet type embodying my invention.

Fig. 2 is a vertical transverse section on line 2—2 of Fig. 3, the burner elements or units being shown in full lines.

Fig. 3 is a view mainly in vertical section on line 3—3 of Fig. 2 with the central louvers and air circulating door closed.

This application is a division of my copending application, Serial No. 185,306, filed January 17, 1938, for Hot air heaters.

In the embodiment of my invention illustrated, the reference numeral 1 indicates the hot air casing which is preferably of approximately rectangular horizontal section. The casing is mounted on a suitable base 2 designed to provide air circulating openings 3. The top 4 is provided with side delivery openings 5 receiving grids 6 having outwardly inclined louvers 7. The top also has a central opening 8 in which is pivotally mounted a series of louvers 9, the pivots 10 being disposed centrally relative to the width of the louvers. The louvers are connected by a bar 11, being connected thereto by the pivots 12.

The front wall of the hot air chamber is provided with a door opening 13 and with the door or closure 14 therefor, the closure being pivotally or rockingly supported at its lower end. The door is connected by the link 15 to an ear 16 on the rear edge of the front louver 9. With this connection, when the door or closure 14 is opened, the series of central louvers 9 are also opened to a forwardly inclined position. The closure 14 is provided with a handle or grip 141. The closure 14 serves as a counterbalance for the pivoted louvers 9 when the parts are in open position.

The burner chamber 17 is mounted centrally within the hot air chamber with its walls in spaced relation to the walls of the hot air chamber, its top being spaced from the top of the hot air chamber.

The burners designated generally by the numeral 18 are mounted on supporting brackets 19. The burners in this case are liquid fuel burners and are supplied with suitable connections from the tank 20 mounted on the rear wall of the hot air chamber. The details of the burners and the connections are not described as they form no part of this invention.

The burners are accessible through the door 21 in the front wall of the hot air chamber. The door casing 22 is secured around an opening 23 in the front wall of the burner chamber and fits into an opening 24 in the front wall of the hot air chamber.

In the top of the burner chamber I provide a hot air flue 25 which is disposed in a rearwardly inclined relation, this hot air flue being formed of spaced plates extending from side to side of the hot air chamber, the hot air flue having an inlet opening 26 in its rear end and a discharge opening 27 in its front end.

By-passing flues 28 are provided at each side of this hot air flue 25, these flues being preferably formed by plates 29 secured to the side walls of the burner chamber to cover the holes 30 and 31 in the side walls located below and above the hot air flue so that the products of combustion pass around the hot air flue. These flues are flattened so as not to unduly obstruct the hot air space and also they present a relatively large radiating surface.

A central discharge flue 32 is provided for the products of combustion. This is designed to receive a suitable conduit, the opening 33 in the rear wall of the hot air chamber being concentric to this flue 32 so that a conduit for the products of combustion can be slipped through the hole 33 into telescoping engagement with the flue 32.

Heaters embodying my invention are highly efficient and my invention may be easily embodied in an attractive cabinet form as illustrated.

The heater is capable of circulating a large volume of air although the temperature of the air circulated may be controlled to a considerable extent by manipulation of the door 14 and consequently the adjustable louvers. It is not deemed desirable to render it possible to close all the louvers as that might result in overheating. The fixed louvers 7 provide a safety factor and the adjustable louvers may be manipulated as desired.

The front wall is preferably provided with air delivery openings 34.

I have illustrated and described my improvements in a very practical embodiment thereof. I have not attempted to illustrate or describe certain embodiments or adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

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

1. In a hot air heater, the combination of a hot air casing provided with a hot air discharge opening at the top thereof, an upright burner chamber disposed within said hot air casing in spaced relation to the walls thereof and having a rearwardly inclined hot air flue exending from side to side of the burner chamber and opening to the hot air chamber at its front and rear ends, said burner chamber having by-pass holes on the sides thereof above and below said hot air flue, opposed flattened heating medium flues on the sides of said burner chamber connecting the respective upper and lower holes, a central discharge flue for said burner chamber opening to the rear wall thereof above said hot air flue, and a heating element in said burner chamber below said hot air flue and below the inlet ends of said side flues.

2. In a hot air heater, the combination of a hot air casing provided with a hot air discharge opening at the top thereof, an upright burner chamber disposed within said hot air casing in spaced relation to the walls thereof and having a rearwardly inclined hot air flue and opening to the hot air chamber at its front and rear ends, said burner chamber having by-pass holes on the sides thereof above and below said hot air flue, opposed heating medium flues secured to the sides of said burner chamber connecting the respective upper and lower holes, a discharge flue for said burner chamber opening to the rear wall thereof above said hot air flue, and a heating element in said burner chamber below said hot air flue and below the inlet ends of said side flues.

3. In a hot air heater, the combination of a hot air casing provided with a hot air discharge opening at the top thereof, a burner chamber disposed within said hot air casing in spaced relation to the walls thereof, said burner chamber having an inclined hot air flue made up of a pair of spaced plates extending entirely across the chamber from side to side thereof, said hot air flue, opening to the hot air chamber at the front and rear thereof, opposed flues for said burner chamber opening to the same above and below said hot air flue, a discharge flue for said burner chamber, and a heating element in said burner chamber below said hot air flue.

EDWIN ESSON.