

April 5, 1932.

H. McKINNIE

1,852,889

HEATER

Filed June 26, 1929

2 Sheets-Sheet 1

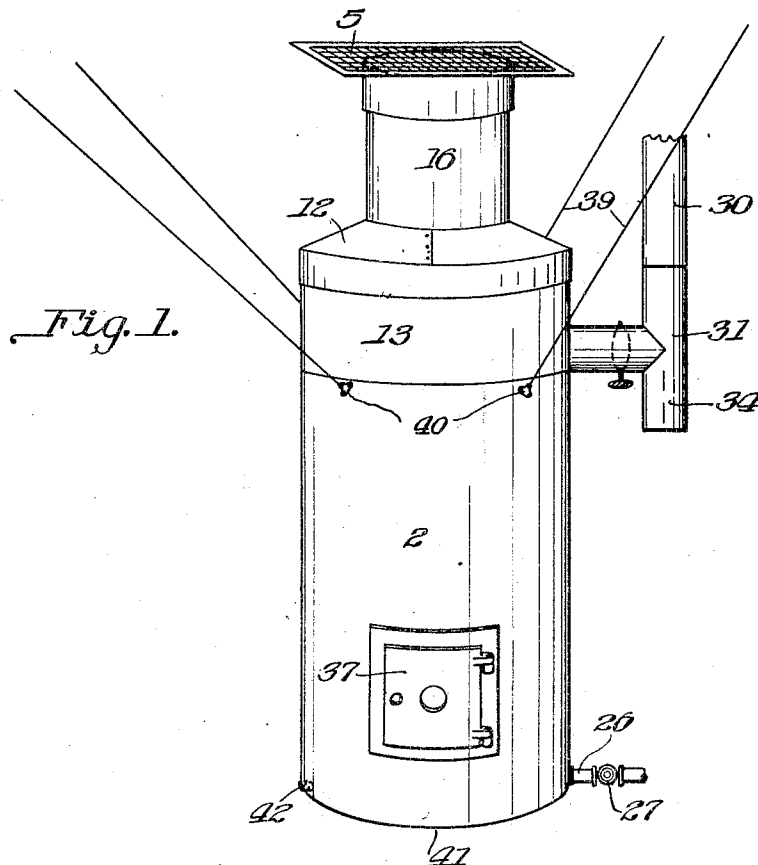
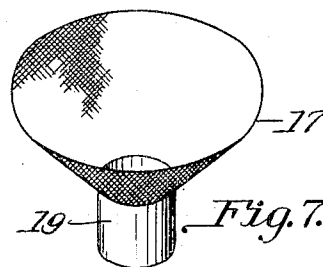
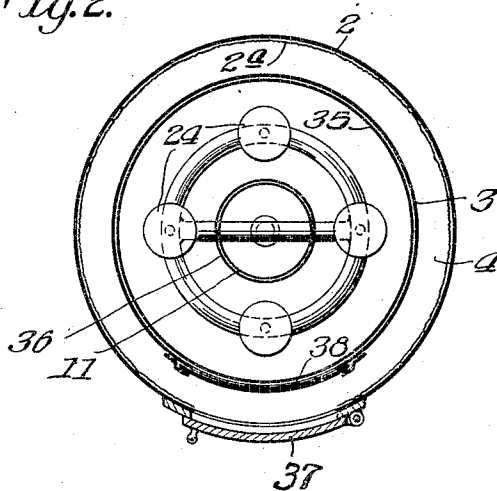


Fig. 2.



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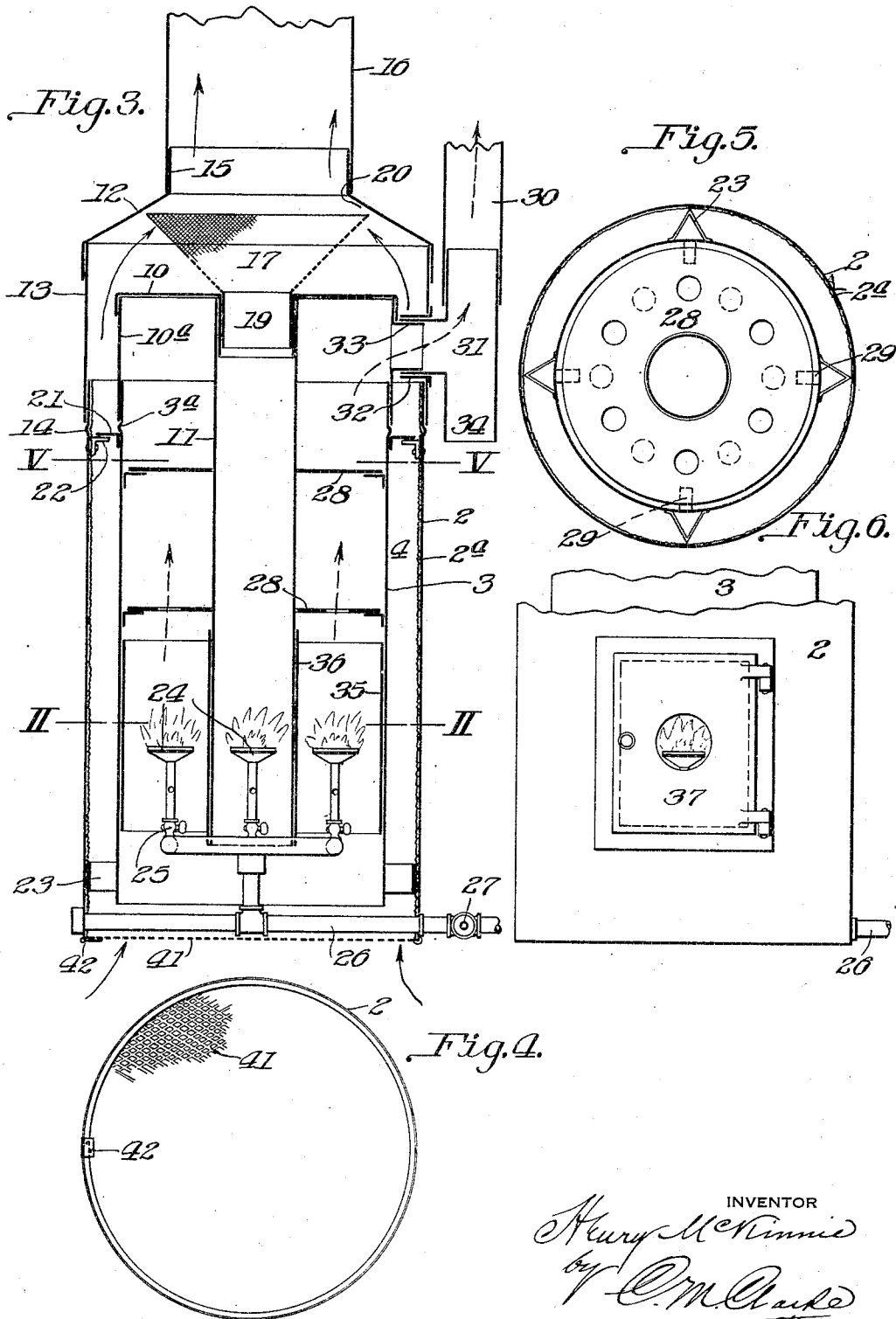
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UNITED STATES PATENT OFFICE

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HEATER

Application filed June 26, 1929. Serial No. 373,710.

My invention consists of an improvement in heaters, especially for domestic use, utilizing any suitable fuel as gas or oil, capable of flow regulation. It has in view to provide a heater of simple and cheap construction, capable of subjecting upwardly circulating air to the radiated heat of a furnace chamber, and having the features of advantage, utility and economy, as hereinafter described.

Referring to the drawings showing certain preferred constructions:

Fig. 1 is a perspective view showing my improved heater suspended below the floor grating;

Fig. 2 is a cross section on the line II—II of Fig. 3;

Fig. 3 is a vertical sectional view of the heater showing the open bottom air supply construction;

Fig. 4 is a bottom view of the heater looking upwardly;

Fig. 5 is a cross section on the line V—V of Fig. 3;

Fig. 6 is a face view of the lower portion of the heater in elevation;

Fig. 7 is a perspective detail view of the removable conform dirt collector.

The heater as a whole may be cylindrical, square, or of other form, preferably of sheet metal, having an outer casing 2 provided with an asbestos lining 2a, and an inner concentric casing 3, with an intervening annular air circulation space 4.

In the form shown in Fig. 1, it is designed that cold air from a room or surrounding cavity, as a cellar below, may be delivered through annular space 4 upwardly through a delivery conduit or pipe 16, and grating 5 to a room above.

The construction results in preheating the air supplied to the fuel burners.

Partition or shell 3 extends from near the bottom of outer shell 2 to near its top, as in Fig. 3, and is closed by a top plate or cover 10, having a telescoping shell extension 10a resting on an expanded ring or shoulder 3a. A central open conduit in the form of a removable pipe 11 extends from the top 10 to or nearly to the bottom of inner casing 3.

The upper open end of outer casing 2 is

closed by a removable dome 12 having a telescoping shell extension 13 fitting over the top and resting on an expanded ring or shoulder 14 or the like.

Dome 12 is reduced in diameter and has an upward extension 15 telescoping into the conduit 16 which conducts air upwardly through the grating 5, as in Fig. 1.

For the purpose of protecting against accumulation of foreign matter which may fall through the grating, I provide the removable cone-shaped collecting cup or bowl 17 having the reduced lower extension 19 removably fitted into the upper end of the middle pipe 11. The bowl 17 is of wire netting or perforated metal for free upward circulation of hot air as indicated, and when inserted, there is an upper annular clearance space 20 around its top for the same purpose.

Inner shell 3 is suspended within outer shell 2 in any suitable manner, as by fixedly secured brackets or clips 21 resting on lugs or abutments 22 of the outer shell, as shown. At its lower end the inner shell is spaced from the outer shell and held centrally by V-shaped brackets 23 or other suitable spacers, providing for free upward circulation of incoming air.

Burners 24 of any suitable kind are located in proper spaced positions around the lower annular space between pipe 11 and casing 3, each burner preferably having a regulating valve 25 and being connected by suitable fittings with a main supply pipe 26 connected with a main and having a main opening and closing valve 27. Any other suitable form or number of burners may of course be substituted.

Above the burners, one or more baffles of perforated metal, with the perforations preferably alternating, or the like, are laid across the circulating area on brackets 29 or the like, for retardation or baffling of the gaseous flow, and it will be understood that any number of such baffles may be used, as desired.

Such baffles are removably supported on lugs or flanges extending inwardly from the inner casing, with an annular clearance space

around the outer edges of the metal plates.

The products of combustion are taken off to a flue or chimney by a pipe 30 having a T connection 31 which, for easy snug fitting insertion and removal, fits between an outer collar 32 and an inner collar 33 leading outwardly from the shell extension 10a, as shown.

It will be noted that due to the shell extensions 10a and 13 being rotatably movable, the T connection 31 may be rotated with section 13 to any desired position, which is highly desirable in installing the heater. The lower end 34 of T coupling 31 may be closed at the bottom, or partly open to facilitate the draft of the flue connection.

In order to protect those parts of casings 3 and 11 which are exposed to the heat of the burners, I preferably provide inner and outer removable linings 35-36 of nickel, copper, or other resistant material, as shown.

An outer door 37 and an inner slide 38 provide for access to the burners, and it will be seen that ample air supply thereto is provided, upwardly through the open bottom, as in Fig. 3. The bottom of the heater is preferably covered with a protecting screen 41 of wire netting or the like, as shown in Figs. 3 and 4, and is hinged as at 42 to permit access to the interior of the heater.

The entire heater may rest on suitable legs or pedestals, or may be bodily suspended from a ceiling or floor beams by wires or chains 39 connected at 40 with the outer casing and diverging upwardly, as in Fig. 1.

As this is an open bottom heater, it is preferably supported from the floor beams as indicated in Fig. 1, to permit a ready circulation of air. To this end, the cellar or lower room wherein the heater is suspended, acts as a cold air well. When the heater is lighted, the air in the circulating space 4 becomes heated and passes upwardly through the conduit 16.

It will be observed from the foregoing description that the entire heater may be easily and quickly assembled, with facility for removal of the fitting 31, dome 12, or of bowl 17, while the cover 10 may also be readily removed for renewing pipe 11 or for placement or removal of baffles 28.

The size, proportions, number of parts, kind of burner, or other details may be variously changed or modified by the skilled mechanic to adapt the heater to various applications or conditions, but all such changes are to be understood as within the scope of the following claims.

I claim:—

1. In a heater, an inner casing and an outer casing providing an upward passage for air therebetween, a delivery conduit for the outer casing, means closing the top of the inner casing having a pipe depending therefrom into the inner casing, a receptacle in

the upper end of said pipe having a portion above said means to direct descending matter into the pipe, said portion being perforated for the passage of heated air there-through, burner means within the inner casing, and discharge flue means leading from the inner casing.

2. In a heater, an inner casing and an outer casing providing an upward passage for air therebetween, a delivery conduit extending from the outer casing, a pipe within the inner casing, said inner casing being closed at the top outwardly of said pipe, a receptacle for matter descending through the delivery conduit, said receptacle being disposed in the upper end of said pipe, burner means within the inner casing, and discharge flue means leading from the inner casing.

3. In a heater, an inner casing and an outer casing providing an upward passage for air therebetween, said outer casing above the inner casing extending inwardly and terminating in a delivery conduit, a pipe within the inner casing, said inner casing being closed outwardly of the pipe, a receptacle in line with the delivery conduit and retained by the upper end of said pipe, said receptacle having a wall extending upwardly and outwardly below said delivery conduit and of greater diameter than the delivery conduit, said wall being perforated for the passage of air therethrough.

In testimony whereof I hereunto affix my signature.

HENRY MCKINNIE.