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GAS WATER HEATER FOR TRAILERS AND HOUSES

Filed Feb. 13, 1956

2 Sheets-Sheet 1

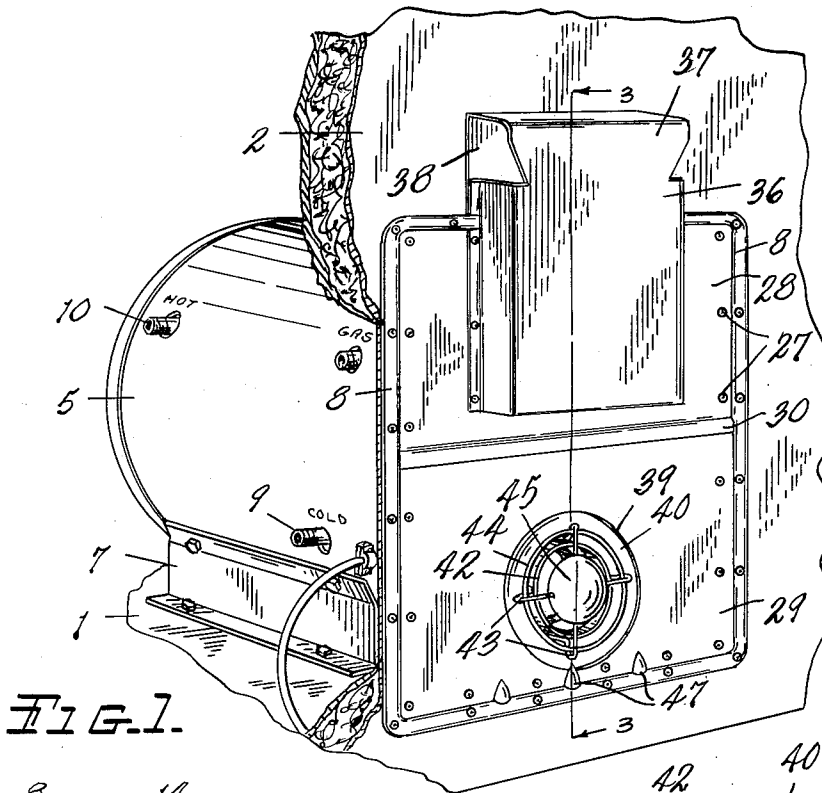


FIG. 1.

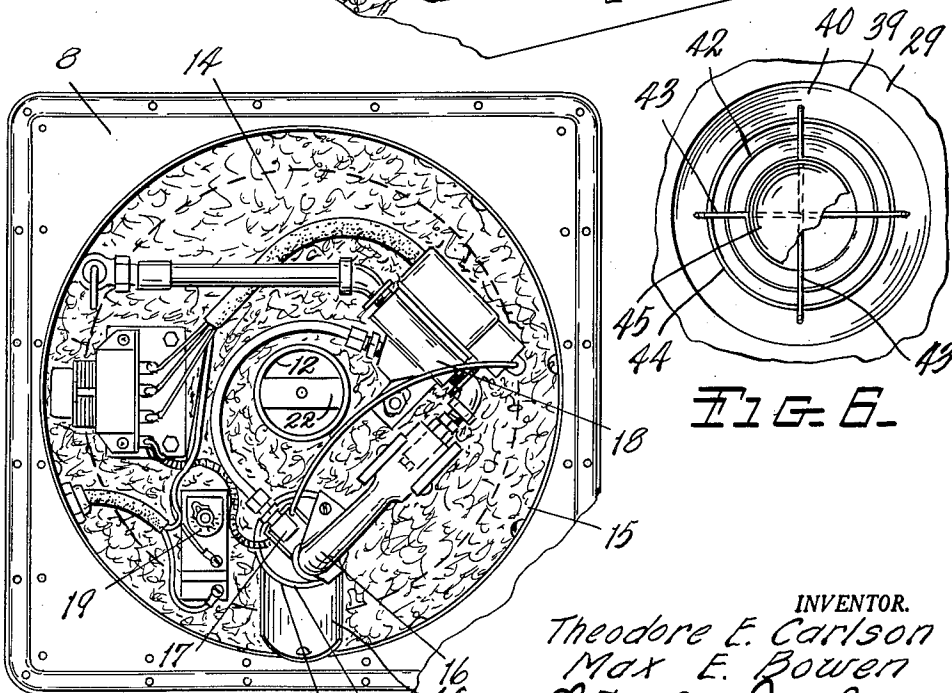


FIG. 2.

FIG. 3.

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2 Sheets-Sheet 2

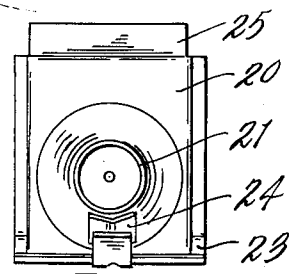
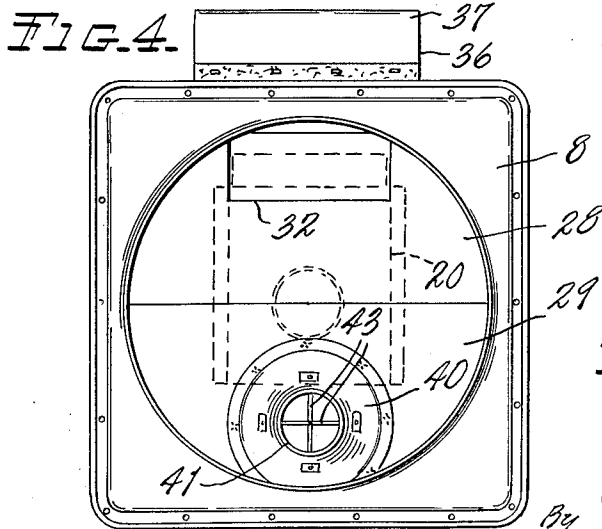
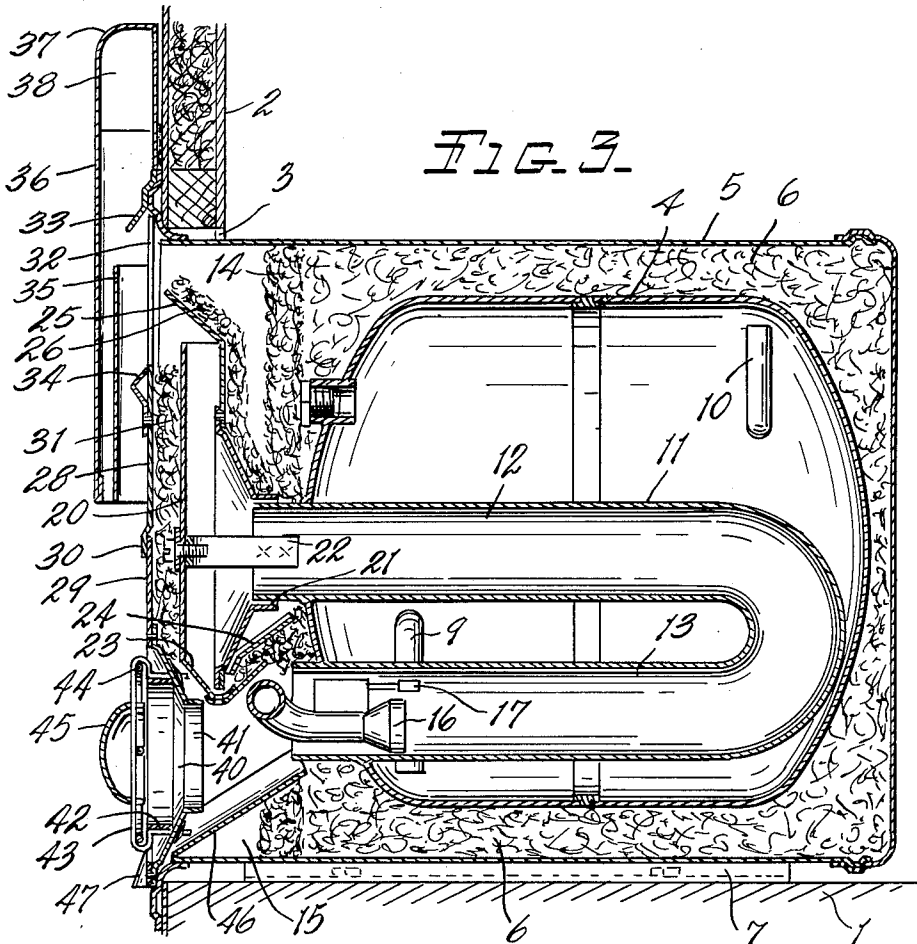
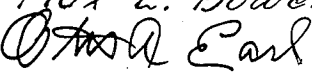


FIG. 5.

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GAS WATER HEATER FOR TRAILERS AND HOUSES

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This invention relates to improvements in a gas water heater for trailers and houses. The principal objects of the invention are:

First, to provide a gas fired water heater which is adapted to receive its combustion air and discharge the products of combustion through an exterior wall so that the heater can be safely operated in small rooms or inclosed spaces such as trailers, bathrooms and the like.

Second, to provide a gas fired water heater which is compact and has its supply and control connections easily accessible through a removable panel which may form the exterior wall of the room, trailer or other inclosed space.

Third, to provide baffling to permit the free access of combustion air to a gas burner and the exhaust of the products of combustion through a wall while protecting insulation and controls of a heater from rain and condensed moisture.

Fourth, to provide a gas fired water heater which is compact and easily mounted in a wall to occupy a minimum of space and operate independently of the atmosphere within the wall.

Fifth, to provide a baffled air inlet for a burner that will admit the correct amount of air to the burner and substantially neutralize the effect of variable wind conditions on the outside of the baffle.

Other objects and advantages of the invention will be apparent from a consideration of the following description and claims. The drawings, of which there are two sheets, illustrate a highly practical form of the heater.

FIG. 1 is a fragmentary perspective view of the heater as installed in the exterior wall of a house trailer, portions of the trailer wall being broken away.

FIG. 2 is a fragmentary outside elevational view of the heater mounting plate with the cover plate removed and illustrating the supply and control connections to the heater.

FIG. 3 is a vertical cross sectional view through the heater taken along the plane of the line 3-3 in FIG. 1.

FIG. 4 is a view of the inside of the cover plate shown in FIGS. 1 and 3 with the location of the exhaust flue in front of the view indicated by dotted lines.

FIG. 5 is an inside elevational view of the exhaust flue.

FIG. 6 is an outside elevational view of the air inlet baffle.

Present day house trailers and mobile homes are tightly sealed enclosures so it is dangerous to operate a gas fired water heater in these trailers when the gas burner is open to the interior of the trailer. Bottled gas is available as a source of fuel for gas burners but the automatic operation of a water heater burner is apt to consume all of the oxygen in the trailer or bathroom or other inclosed space and fill the space with dangerous products of combustion. The present heater is accordingly designed to operate exclusively on air taken from outside the space and to exhaust the products of combustion to the outside of the space.

In the drawings we have illustrated our invention as installed in a trailer in which 1 indicates the floor and 2 indicates an exterior wall having a rectangular opening 3 of suitable size formed therein. The water heater consists of a cylindrical tank 4 disposed on its side within

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a cylindrical casing 5 and surrounded by a layer of heat insulating material 6. The sides of the cylindrical casing 5 have horizontally extending rails 7 secured thereto to support and secure the tank and casing to the floor 1. The outer end of the casing 5 projects through the opening 3 and has a radially extending annular flange 8 secured to the outer surface of the wall 2. The flange 8 is rectangular in the example illustrated but this is a non-essential detail of design.

The water is admitted to the tank 4 through an inlet pipe 9 and is directed through a hot water delivery pipe 10. The water is heated by a U-shaped heating tube 11 having an upper branch 12 projecting through the center of the outer end wall of the tank and a lower branch 13 also projecting through the end wall of the tank. It will be noted that the tank is recessed into the casing 5 so that the outer layer 14 of insulation over the end of the tank forms the inner wall of a control recess 15 within the outer end of the casing. A gas burner 16 projects into the inlet end 13 of the heater tube and is provided with such control connections as an igniter 17, automatic supply valve 18, thermostatic switch 19 and other connections common to an automatic gas heater. These auxiliary parts and connections are housed within the recess 15.

The products of combustion are discharged through the exhaust end 12 of the heater tube into a flat box-like flue 20 having a circular flanged opening 21 mounted over the end of the heater tube. The flue 20 is secured in place by bolting its outer wall to a U-shaped strap 22 projecting from the end of the heater tube. The bottom wall 23 of the flue is downwardly V-shaped to form a moisture collecting trough that is open at the center for moisture drainage but is substantially closed as far as air circulation through the flue is concerned. The upwardly and inwardly inclined gutter plate 24 is secured to the inner wall of the flue and projects underneath the flanged opening 21 to collect any moisture or condensation that may drip from the opening and direct the water to the trough 23. The top of the flue 20 is open and provided with an upwardly and outwardly inclined baffle 25. The inner surfaces of the flue 20 and the baffle 25 are covered with a layer of insulating material 26 to protect the various supply and control connections from the temperature of the exhaust gases in the flue.

The outer end of the control recess 15 is closed by a cover plate removably secured to the flange 8 by screws 27. The cover plate consists of an upper part 28 and a lower part 29 joined in an overlapping joint 30. Both plates are spaced outwardly from the exhaust flue 20 and a layer of insulating material 31 is carried on the outside of the flue to keep the cover plate cool. The upper plate 28 defines an exhaust opening 32 positioned opposite the upper end of the flue 20 and the baffle 25 and carries a downwardly and outwardly inclined eave 33 above the exhaust opening and a V-shaped eave and baffle 34 below the exhaust opening. Secured to the outside of the upper plate 28 is a vertically extending channel shaped baffle 35 that extends vertically across the open upper end of the flue 20 and substantially below the lower eave 34. The baffle 35 prevents outside drafts from blowing directly into the exhaust flue 20 to interfere with the operation of the burner. With either an upward or downward draft through the baffle 35 the exhaust fumes will discharge into the channel-shaped baffle and be carried away. The upper eave 33 prevents rain and moisture from being directed into the exhaust flue and the lower eave 34 prevents up drafts from carrying rain and moisture into the exhaust opening. A rain deflector plate 36 secured to the top plate 28 is bent in U-shape around the sides of the baffle 35 and in spaced relation thereto. The top of the plate

36 is extended upwardly in a downwardly facing loop 37 over the top of the baffle 35. It will be noted that the upper end of the deflector plate 36 terminates at its sides below the top of the loop 37. This leaves openings 38 through which air may circulate through the baffle 35 and deflector plate 36. The U-section of the deflector plate is open at the bottom. The deflector plate 36 also prevents accidental contact with the baffle 35 which will become heated from the exhaust gases. The deflector plate 36 also supplements the action of the baffle 35 in creating vertical air flow past the end of the exhaust flue and prevents back drafts into the exhaust flue.

The lower cover plate 29 defines a central circular opening 39 opposite the lower inlet end 13 of the burner tube. Secured on the inside of the plate around the opening 39 is an inwardly converging conical member 40 terminating in a short cylindrical flange 41 spaced from the burner tube 13. Within the concave recess of the conical member 40 is a short cylindrical wall 42 of larger diameter than the flange 41. The wall 42 supports cross wires 43 and the wires 43 are further interconnected by a wire ring 44. The cross wires 43 support an outwardly convex circular domed baffle 45 in front of the center of the cylindrical wall 42. The back of the domed baffle terminates approximately in the plane of the outer end of the cylindrical wall and in radially inwardly spaced relation therefrom.

It has been found that the annular opening between the cylindrical wall 42 and the baffle 45 permits plenty of air to enter to the inlet end of the burner tube 13 when still air conditions exist outside the wall 2. Further the combination of the conical recess formed by the conical member 40 with the cylindrical wall 42 and baffle 45 prevents winds from any direction from creating an abnormal draft or pressure condition in the inlet to adversely affect the operation of the burner.

The lower edge of the cylindrical body 5 carries a central inclined trough 46 that underlies the inlet end 13 of the burner tube and the trough 23 on the exhaust flue to catch any condensate or dripping water and direct it to the bottom edge of the lower cover plate 29 where it escapes through the drain holes 47. It will thus be seen that the heater mounting provides complete protection of the burner from external drafts which might interfere with the proper operation of the burner. It also provides complete control of moisture which may tend to accumulate or be blown into the heater casing. It is therefore possible to permit the heater to operate automatically for long periods without any access opening from the heater to the interior of the trailer or enclosed spaces and with all combustion air taken from the exterior of the space and the products of combustion exhausted to the exterior thereof.

Having thus described the invention what is claimed to be new and what is desired to be secured by Letters Patent is:

1. A water heater adapted to be installed in mobile homes comprising, a horizontally arranged cylindrical tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a cylindrical casing enclosing said tank and having an open end with an annular flange therearound adapted to be mounted in an opening in an exterior wall of a mobile home, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank and forming the inner wall of said recess with the ends of said tube projecting through the insulation, a flat box-like flue having a circular flanged opening in one side registering with the discharge end of said tube and positioned within said recess, the top wall of said flue being open and having an outwardly inclined deflector panel extending thereacross, the bottom wall of said flue forming a moisture collecting trough open to drain-

age at the center, a cover plate secured to said flange over said recess and spaced outwardly from said flue, said cover plate having an exhaust opening in the upper part thereof opposite said deflector panel and having downwardly inclined eaves extending along the upper and lower edges of the exhaust opening, a circular opening formed in the lower central part of said cover plate below said flue and forming an inlet opening to said recess, insulating material packed between said cover plate and said flue above said inlet opening, an inwardly converging conical member secured around the inner side of said inlet opening and opening toward the lower inlet end of said heater tube, a short cylindrical wall within the outer concave portion of said conical member, a domed circular baffle positioned over the outer end of said cylindrical wall and spaced radially inwardly therefrom, a trough positioned under the drain opening in said exhaust flue and inclined outwardly to said flange and extending upwardly to underneath the lower end of said heater tube, said plate and said flange forming a drain opening registering with the bottom of said trough, a flat U-shaped baffle secured to said plate across the end of said exhaust opening and open at the top and bottom and extending below said lower eave, a second flat U-shaped baffle and guard plate embracing said first baffle and spaced outwardly therefrom, said second baffle being open at the bottom and folded over the top of said first baffle in spaced relation thereto leaving open corners at the top of the second baffle, a gas burner mounted in the lower end of said tube and directed thereto, and supply and control connections for said burner mounted in said recess.

2. A water heater adapted to be installed in mobile homes comprising, a horizontally arranged tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end with an annular flange therearound adapted to be mounted in an opening in an exterior wall of a mobile home, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank and forming the inner wall of said recess with the ends of said tube projecting through the insulation, a flat box-like flue having a circular flanged opening in one side registering with the discharge end of said tube and positioned within said recess, the top wall of said flue being open and having an outwardly inclined deflector panel extending thereacross, the bottom wall of said flue forming a moisture collecting trough open to drainage at the center, a cover plate secured to said flange over said recess and spaced outwardly from said flue, said cover plate having an exhaust opening in the upper part thereof opposite said deflector panel and having downwardly inclined eaves extending along the upper and lower edges of the exhaust opening, a circular opening formed in the lower central part of said cover plate below said flue and forming an inlet opening to said recess, an inwardly converging conical member secured around the inner side of said inlet opening and opening toward the lower inlet end of said heater tube, a short cylindrical wall within the outer concave portion of said conical member, a domed circular baffle positioned over the outer end of said cylindrical wall and spaced radially inwardly therefrom, a trough positioned under the drain opening in said exhaust flue and inclined outwardly to said flange and extending upwardly to underneath the lower end of said heater tube, said plate and said flange forming a drain opening registering with the bottom of said trough, a flat U-shaped baffle secured to said plate across the end of said exhaust opening and open at the top and bottom and extending below said lower eave, a second flat U-shaped baffle and guard plate embracing said first baffle and spaced outwardly therefrom, said second baffle being open at the bottom and folded-

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over the top of said first baffle in spaced relation thereto leaving open corners at the top of the second baffle, a gas burner mounted in the lower end of said tube and directed thereinto, and supply and control connections for said burner mounted in said recess.

3. A water heater adapted to be installed through a wall of an enclosure comprising, a horizontally arranged tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end adapted to be mounted in an opening in an exterior wall of an enclosure, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank and forming the inner wall of said recess with the ends of said tube projecting through the insulation, a flat box-like flue having a flanged opening in one side registering with the discharge end of said tube and positioned within said recess, the top of said flue being open and having an outwardly inclined deflector panel extending thereacross, a cover plate secured over said recess and spaced outwardly from said flue, said cover plate having an exhaust opening in the upper part thereof opposite said deflector panel and having outwardly inclined eaves extending along the upper and lower edges of the exhaust opening, an opening formed in the lower central portion of said cover plate forming an inlet opening to said recess, an inwardly converging conical member secured around said inlet opening and extending toward and opening to the inlet end of said heater tube, a short wall in the recess of said conical member projecting outwardly therefrom around said inlet opening, a domed baffle positioned in front of said wall and spaced radially inwardly therefrom, a moisture collecting trough positioned under said inlet opening and inclined outwardly from below the bottom end of said tube to the outer end of said recess, said plate forming a drain opening registering with the bottom of said trough, a flat U-shaped baffle secured to said plate across the end of said exhaust opening and open at the bottom and extending below said lower eave, a rain and exhaust gas deflector extending from and across the top of said U-shaped baffle and open at each end, a gas burner mounted in the lower end of said tube and directed thereinto, supply and control connections for said burner mounted in said recess, and a layer of insulating material positioned between the outer wall of said flue and said plate between said exhaust opening and said inlet opening.

4. A water heater adapted to be installed through a wall of an enclosure comprising, a horizontally arranged tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end adapted to be mounted in an opening in an exterior wall of an enclosure, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank and forming the inner wall of said recess with the ends of said tube projecting through the insulation, a flue having a flanged opening in one side registering with the discharge end of said tube and positioned within said recess, the top of said flue being open and having an outwardly inclined deflector panel extending thereacross, a cover plate secured over said recess and spaced outwardly from said flue, said cover plate having an exhaust opening in the upper part thereof opposite said deflector panel, an opening formed in the lower central portion of said cover plate forming an inlet opening to said recess, an inwardly converging conical member secured around said inlet opening and extending toward and opening to the inlet end of said heater tube, a short wall in the recess of said conical member projecting outwardly therefrom around said inlet opening, a domed baffle positioned in front of

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said wall and spaced radially inwardly therefrom, a moisture collecting trough positioned under said inlet opening and inclined outwardly from below the bottom end of said tube to the outer end of said recess, said plate forming a drain opening registering with the bottom of said trough, a flat U-shaped baffle secured to said plate across the end of said exhaust opening and open at the bottom and extending below said lower eave, a rain and exhaust gas deflector extending from and across the top of said U-shaped baffle and open at each end, a gas burner mounted in the lower end of said tube and directed thereinto, and supply and control connections for said burner mounted in said recess.

5. A water heater adapted to be installed in a wall comprising a horizontally arranged tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end adapted to be mounted in an opening in an exterior wall of an enclosure, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank with the ends of said tube projecting through the insulation to said recess, a flat box-like flue having an opening in one side registering with the discharge end of said tube and positioned within said recess, the top of said flue being open and having an outwardly inclined deflector panel extending thereacross, a cover plate secured over said recess and spaced outwardly from said flue, said cover plate having an exhaust opening in the upper part thereof opposite said deflector panel and having downwardly inclined eaves extending along the upper and lower edges of the exhaust opening, an opening formed in the lower portion of said cover plate forming an inlet opening to said recess, an inwardly converging conical member secured around said inlet opening and extending toward and opening to the inlet end of said heater tube, a short wall within the concave portion of said conical member and around the opening therein, a domed baffle positioned in front of said wall and in radially inwardly spaced relation thereto, a U-shaped baffle mounted on said plate across the end of said exhaust opening and open at the top and bottom and extending below said lower eave, a gas burner mounted in the lower end of said tube and directed thereinto, and supply and control connections for said burner mounted in said recess.

6. A water heater adapted to be installed in a wall comprising, a horizontally arranged tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end adapted to be mounted in an opening in an exterior wall of an enclosure, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank with the ends of said tube projecting through the insulation to said recess, a flue having an opening registering with the discharge end of said tube and positioned within said recess, the top of said flue being open and having an outwardly inclined deflector panel extending thereacross, a cover plate secured over said recess, said cover plate having an exhaust opening in the upper part thereof opposite said deflector panel, an opening formed in the lower portion of said cover plate forming an inlet opening to said recess, an inwardly converging conical member secured around said inlet opening and extending toward and opening to the inlet end of said heater tube, a short wall within the concave portion of said conical member and around the opening therein, a domed baffle positioned in front of said wall and in radially inwardly spaced relation thereto, a gas burner mounted in the lower end of said tube and directed thereinto, and supply and control connections for said burner mounted in said recess.

7. A water heater adapted to be installed in a wall comprising, a horizontally arranged tank having a U-

shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end adapted to be mounted in an opening in an exterior wall of an enclosure, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank with the ends of said tube projecting through the insulation, a flue having an opening registering with the discharge end of said tube and positioned within said recess, the other end of said flue being open and directed outwardly of said casing, a cover plate secured over said recess, said cover plate having an exhaust opening in the upper part thereof opposite the open end of said flue, a circular inlet opening formed in the lower portion of said plate, baffle means carried by said plate across the end of said exhaust opening and open at the top and bottom, a second baffle and guard plate embracing said baffle means and spaced outwardly therefrom, said second baffle being open at the top and bottom, a rain and exhaust gas deflector extending across the top of said second baffle and open at each end, other baffle means extending around said inlet opening and forming a flow disrupting wall projecting outwardly therefrom, a domed baffle positioned at the outer end of said other baffle means and spaced radially inwardly therefrom, a gas burner mounted in the lower end of said tube and directed thereinto, and supply and control connections for said burner mounted in said recess.

8. A water heater adapted to be installed in a wall comprising, a horizontally arranged tank having a U-shaped heater tube positioned therein with the ends of the tube projecting through one end of the tank, a casing enclosing said tank and having an open end adapted to be mounted in an opening in an exterior wall of an enclosure, said tank being recessed into said casing to provide a control chamber within the outer end of the casing, insulation surrounding said tank with the ends of said tube projecting through the insulation, a flue having an opening registering with the discharge end of said tube and positioned within said recess, the other end of said flue being open and directed outwardly of said casing, a cover plate secured over said recess, said cover plate having an exhaust opening in the upper part thereof opposite the open end of said flue, a circular inlet opening formed in the lower portion of said plate, baffle means extending around said inlet opening and forming a flow disrupting wall projecting outwardly therefrom, a domed baffle positioned at the outer end of said baffle means and spaced radially inwardly therefrom, a gas burner mounted in the lower end of said tube and directed thereinto, and supply and control connections for said burner mounted in said recess.

9. Water heater construction comprising a horizontally arranged casing having an open end, a water tank positioned within said casing and insulated therefrom, said tank and insulation being recessed into the said casing to provide a control chamber in the outer end of said casing, a U-shaped heater tube positioned in said tank and having inlet and outlet ends projecting into said chamber, a flat box-like flue positioned within said recess and spaced from the walls thereof and having an opening in its inner side wall registering with the outlet end of the said tube, the upper end of the said flue being open and having an outwardly inclined baffle extending thereacross, first gutter means positioned to collect moisture draining through said flue and through the opening therein, a cover plate for said chamber having an exhaust opening positioned opposite said baffle and having an inlet opening positioned in the lower portion of said plate to direct inlet air toward the inlet end of said tube, insulating means between said flue and said cover plate preventing direct communication between said exhaust opening and said inlet opening, second gutter means

positioned below said inlet opening and said first gutter means to collect moisture entering the inlet opening and moisture collected by the first gutter means and inclined downwardly and outwardly from the lower end of said tube to the outside of said recess and below said first gutter means to direct all moisture outwardly from said recess, and baffle means on the outside of said plate over said inlet opening and said exhaust opening to prevent external inwardly directed drafts directly into said chamber and flue.

10. Water heater construction comprising a horizontally arranged casing having an open end, a water tank positioned within said casing and insulated therefrom, said tank and insulation being recessed into the said casing to provide a control chamber in the outer end of said casing, a U-shaped heater tube positioned in said tank and having inlet and outlet ends projecting into said chamber, a flat box-like flue positioned within said recess and spaced from the walls thereof and having an opening in its inner side wall registering with the outlet end of the said tube, the upper end of the said flue being open and having an outwardly inclined baffle extending thereacross, a cover plate for said chamber having an exhaust opening positioned opposite said baffle and having an inlet opening positioned in the lower portion of said plate to direct inlet air toward the inlet end of said tube, insulating means between said flue and said cover plate preventing direct communication between said exhaust opening and said inlet opening, gutter means positioned below said inlet opening to collect moisture entering the inlet opening and inclined downwardly and outwardly from the lower end of said tube to the outside of said recess to direct moisture outwardly from said recess, and baffle means on the outside of said plate over said inlet opening and said exhaust opening to prevent external inwardly directed drafts directly into said chamber and flue.

11. Water heater construction comprising a horizontally arranged casing having an open end, a water tank positioned within said casing and insulated therefrom, said tank and insulation being recessed into the said casing to provide a control chamber in the outer end of said casing, a U-shaped heater tube positioned in said tank and having inlet and outlet ends projecting into said chamber, a flue positioned within said recess and spaced from the walls thereof and having an opening in its inner side wall registering with the outlet end of said tube, the upper end of said flue being open, a cover plate for said chamber having an exhaust opening positioned opposite the open end of the flue and having an inlet opening positioned below said exhaust opening, an inwardly converging member positioned on the inner side of said cover plate over said inlet opening and having an open inner end opposed to the inlet end of said heater tube, a short wall within the outer side of said converging member and disposed around the open inner end thereof and extending outwardly from said opening at an angle to said converging member, a baffle of outwardly convex shape positioned at the outer end of said wall and spaced radially inwardly therefrom, and baffle means on the outside of said plate and surrounding said exhaust opening to prevent back drafts directly into said chamber and flue.

12. Water heater construction comprising a horizontally arranged casing having an open end, a water tank positioned within said casing and insulated therefrom, said tank and insulation being recessed into the said casing to provide a control chamber in the outer end of said casing, a U-shaped heater tube positioned in said tank and having inlet and outlet ends projecting into said chamber, a flue positioned within said recess and spaced from the walls thereof and having an opening in its inner side wall registering with the outlet end of said tube, the upper end of said flue being open, a cover plate for said chamber having an exhaust opening positioned opposite the open end of the flue and having an inlet opening posi-

tioned below said exhaust opening, an inwardly converging member positioned on the inner side of said cover plate over said inlet opening and having an open inner end opposed to the inlet end of said heater tube, a short wall within the outer side of said converging member and disposed around the open inner end thereof and extending outwardly from said opening at an angle to said converging member, a baffle positioned at the outer end of said wall and spaced radially inwardly therefrom, and baffle means on the outside of said plate and surrounding said exhaust opening to prevent back drafts directly into said chamber and flue.

13. Water heater construction comprising a horizontally arranged casing having an open end, a water tank positioned within said casing and insulated therefrom, said tank and insulation being recessed into the said casing to provide a control chamber in the outer end of said casing, a heater tube positioned in said tank and having an inlet end projecting into said chamber, means connecting the outlet end of said tube to an area exterior to said casing, a cover plate for said chamber having an inlet opening formed therein, an inwardly converging member positioned on the inner side of said cover plate over said inlet opening and having an open inner end opening to said casing and opposed to the inlet end of said tube, a baffle within the outer side of said converging member disposed around said open inner end and projecting outwardly therefrom, and a circular outwardly domed baffle positioned over the outer end of said first baffle and spaced radially inwardly therefrom.

14. Water heater construction comprising a horizontally arranged casing having an open end, a water tank positioned within said casing and insulated therefrom, a heater tube positioned in said tank and having an inlet end projecting therefrom, means connecting the outlet end of said tube to an area exterior to said casing, a cover plate for said casing having an inlet opening formed therein, an inwardly converging member positioned on the inner side of said cover plate over said inlet opening and having an open inner end opening to said casing, a baffle within the outer side of said converging member disposed around said open inner end and projecting outwardly therefrom, and a baffle positioned over the outer end of said first baffle and spaced radially inwardly therefrom.

15. In combination with a water heater having a horizontally arranged combustion heater tube therein with an inlet end projecting therefrom, means forming an enclosure with an exterior wall defining an inlet opening, means for mounting said heater with said inlet end adjacent said exterior wall, an inwardly converging outwardly concave tubular member positioned in said inlet opening and having an open inner end communicating with and opposed to said inlet end of said tube, outwardly projecting baffle means positioned in said concave member and disposed around said open inner end, and a second baffle of outwardly domed shape positioned across the outer end of said first baffle means and spaced transversely inwardly therefrom.

16. In combination with a water heater having a horizontally arranged combustion heater tube therein with an inlet end projecting therefrom, means forming an enclosure with an exterior wall defining an inlet opening, means for mounting said heater adjacent said exterior wall, an inwardly converging outwardly concave member positioned over said inlet opening and having an open inner end communicating with said inlet end of said tube, outwardly projecting baffle means positioned in said concave member and disposed around said open inner end, and a second baffle positioned across the outer end of said first baffle means and spaced transversely inwardly therefrom.

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