

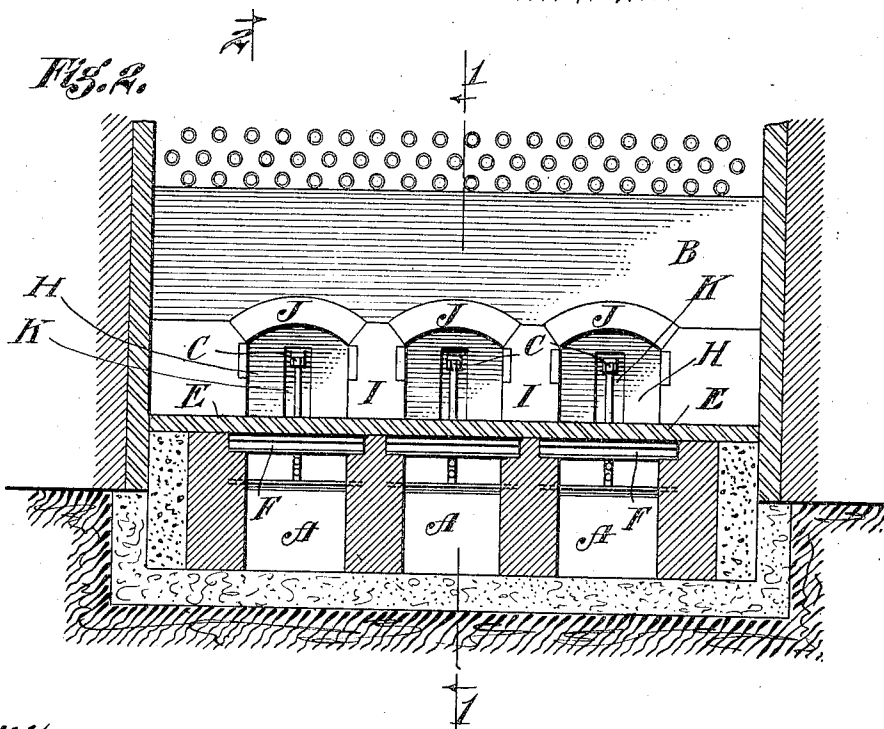
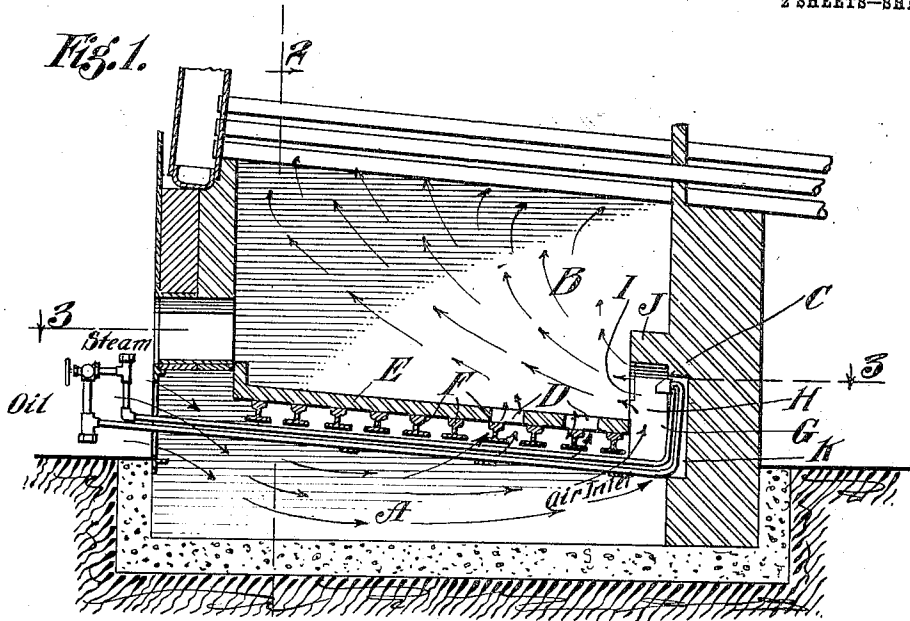
C. A. HAMMEL.
OIL BURNING FURNACE.

APPLICATION FILED JULY 26, 1906. RENEWED MAY 22, 1908.

935,202.

Patented Sept. 28, 1909.

2 SHEETS—SHEET 1.



Witnesses
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Inventor
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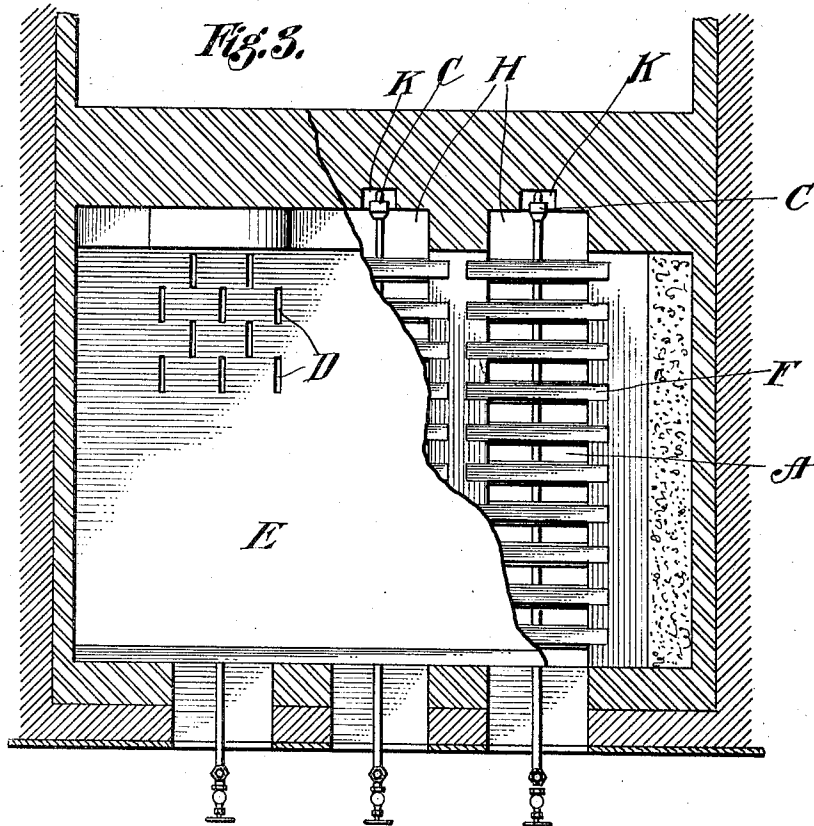
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UNITED STATES PATENT OFFICE.

CHARLES A. HAMMEL, OF LOS ANGELES, CALIFORNIA.

OIL-BURNING FURNACE.

935,202.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed July 26, 1906, Serial No. 327,956. Renewed May 22, 1908. Serial No. 434,373.

To all whom it may concern:

Be it known that I, CHARLES A. HAMMEL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Oil-Burning Furnaces, of which the following is a specification.

My invention relates to heating furnaces in which a plurality of hydrocarbon burners may be used located in the rear of the combustion chamber or fire box and in which each burner has an independent air inlet leading thereto.

In the drawings:—Figure 1— is a central longitudinal vertical section taken on line 1—1 of Fig. 2. Fig. 2— is a transverse section of the furnace taken on line 2—2 of Fig. 1. Fig. 3— is a sectional plan view in which the floor E of the furnace is partly broken away showing part of the floor-supporting irons F.

In order to more uniformly heat and distribute the air which is fed to each burner I have provided a separate aperture or channel leading from the outside to the rear end of the furnace where the burners are disposed and to this end the air is fed around the burner and a small portion thereof into the combustion chamber immediately below and in front of the burner. By providing a separate feeding flue for the passage into the furnace of air to each burner an excessive amount of air is prevented from being fed to the burners, which takes place in the ordinary furnace when any number of burners are in operation less than the whole number. When only a few burners are being used, as these furnaces have heretofore been constructed, the entire air supply is open to be fed thereto and the result is a superabundance of air will enter the combustion chamber, causing the loss of heat units and rendering the furnace less economical than when the proper amount of air only is permitted to pass to each burner. In order to economize in the use of hydrocarbon for furnaces of this character it is necessary that the proper amount of air, no more and no less, should be fed to each burner and I have therefore arranged in the furnace herein shown and described, that only the proper quantity of air can get to each burner no matter how many burners may be in operation.

In the accompanying drawings A repre-

sents a separate flue leading from the outside or front of the furnace to the rear thereof where one of the burners C is located and permits the proper volume of air to pass into the combustion chamber B directly around the burner C. I find by experience a better result is obtained by feeding a small portion of this air upwardly into the combustion chamber immediately in front of and below the burner as through air supply ports D. This air being fed upwardly into the flame immediately in front of the burner and being in a heated condition when it is so fed into the combustion chamber adds to the intensity of the flame and the amount of heat created thereby, and keeps the flame away from the floor. The air which passes through the supply ports D passes thereto immediately under the bottom E of the furnace which rests upon the supporting iron rails F and is therefore fed into the combustion chamber in a heated condition.

In a furnace constructed as herein shown the proper amount of air will always be fed to the burner and this air will always be properly heated to produce the best results, because it will be fed to the burner through the air flue lying immediately below the floor in front of the burner which is in operation, and the proper amount of heat will always be thrown off to properly heat the air fed to the burner. In the absence of a separate flue leading to each burner the air fed to the burner will flow directly from the inlet supplying all the burners, those not in operation as well as those in operation and as a result when any less number of burners are in operation than the furnace has, the air will be correspondingly cooler and not in proper heated condition to be economically used.

Another feature of my invention to properly heat the air which is fed to the burner to produce the best results resides in the air receiving pocket H in the rear end of the furnace which communicates with the air flue leading from the front. The burner is disposed in the pocket which is formed by the abutments I and the arches J which project into the combustion chamber and the pocket is sufficiently large to receive the air in the generous quantity so as to permit the air to move slowly passing through to the combustion chamber to become thoroughly heated. The air receiving pocket H opening directly into the combustion chamber is exposed to the radiating heat there-

from and adds heat to the air which is fed therethrough. To further protect the burner and the oil and steam pipes leading thereto from the intense heat from the fire box the burner and the pipes are placed in the vertical recess K formed in the rear of the pocket H. This recess is so arranged as to receive the pipes and hold them so as to keep the burner in its proper position. This affords ready means to enable me to crowd the burner into its proper position in the rear end of the furnace without any other appliances.

The entire bottom or floor of the furnace inclines rearwardly so as to deflect the heat radiating upwardly from the bottom away from the front of the furnace thereby fully utilizing the heat units and directing the heat to that portion of the furnace whereby the efficiency of the boiler is greatly enhanced.

What I claim as new and desire to secure by Letters Patent is:—

1. An oil burning furnace, the entire bottom of which inclines rearwardly whereby to deflect the heat away from the front of the furnace, and a burner located in proximity to the rear end of said bottom and discharging into the combustion chamber over the bottom.

2. An oil burning furnace, the entire bottom of which inclines rearwardly whereby to deflect the heat away from the front of the furnace, and a burner located in proximity to the rear end of said bottom and discharging into the combustion chamber over the bottom, said burner operated and controlled from the forward end of the furnace.

3. An oil burning furnace, the entire bottom of which inclines rearwardly having air inlets through the lower end thereof, whereby to deflect the heat away from the front of the furnace, and a burner located in proximity to the rear end of said bottom and discharging into the combustion chamber over the bottom.

4. A furnace having its entire bottom inclining rearwardly whereby to deflect the heat away from the front of the furnace, a plurality of hydro-carbon burners discharging directly into a combustion chamber, a separate air flue for supplying air to each burner, said burners located at one end of the furnace and discharging at the other end forwardly whereby a separate supply of air is fed directly to each burner.

5. In a hydrocarbon furnace of the character described, having a plurality of burners disposed in the rear of the combustion chamber and arranged to discharge a flame toward the front of the furnace; a pocket in the rear wall of the furnace; a separate air inlet below the floor of the furnace for each burner leading from the front to the pocket in the rear wall of the combustion chamber, the pocket in said wall forming a

part of the air flue leading from the front to the fire box, whereby the air is deflected into the pocket, and an oil burner in said pocket.

6. A furnace having a plurality of hydrocarbon burners discharging directly into a fire box, recesses in which said burners are located, each of said recesses being supplied with air for combustion through a separate flue leading from the front to the rear of the furnace, each of said burners being disposed in a recess and adapted to be supplied with air therefrom.

7. In a furnace of the character herein described having a plurality of hydrocarbon burners disposed in the rear wall of the combustion chamber and adapted to discharge a flame into the combustion chamber; a separate air flue for feeding each burner extending from front to rear of the furnace; a supplemental air inlet port disposed in the floor of furnace and communicating with the air flue and discharging directly in front of each burner, and a recess in which said burners are located whereby air passes in contact with the burners on its way to the combustion chamber.

8. In a furnace of the character herein described, an air duct, an air receiving pocket comprising a recess in the rear wall of the fire box adapted to receive the burner, the said pocket extending into the fire box and communicating with the air duct forming a passage leading from the air duct into the fire box whereby a portion of the air supply is deflected into the pocket, and an oil burner in said pocket arranged to project a flame into the fire box.

9. In a furnace of the character herein described, an air duct, an air receiving pocket disposed in the rear of the fire box and opening directly thereinto, the said pocket forming a part of the communication through which air passes from the outside to the fire box whereby a portion of the air supply from the air duct is deflected into the pocket, an oil burner in said pocket, and an oil and steam pipe leading to the burner.

10. In a furnace of the character herein described, an air duct, a recess or pocket in the rear of the fire box for the passage thereof of air from the outside to the fire box whereby a portion of the air supply is deflected into the pocket, an oil burner in said recess discharging combined steam and oil thereinto in the direction of the fire box and adapted to cause the air passing there-through to mingle therewith and project a flame into the fire box.

11. In a hydrocarbon furnace, a flue below the floor of the furnace for the passage of air from the front of the furnace to the rear of the fire box, a recess in the rear wall of the furnace forming a continuation of the air flue from the front to the fire box and

adapted to receive an oil burner therein, an
oil burner in said recess arranged to dis-
charge combined steam and petroleum into
said recess and mingle with and carry the
5 air in said recess into the fire box, air inlet
ports in front of the burner extending
through the floor of the furnace to the air
flue, whereby a part of the air passing
through the air flue will be discharged into
10 the fire box in front of the burner, and a
portion into the recess.

12. An oil burning furnace comprising a
combustion chamber having a plurality of
hydro-carbon burners disposed in the rear

and discharging toward the front thereof, 15
and a plurality of tunnels disposed under
the floor of the combustion chamber each of
said tunnels extending from the front to the
rear of the furnace and forming a separate
and independent passage-way for directing 20
air to a burner.

In witness that I claim the foregoing I
have hereunto subscribed my name this 12th
day of July, 1906.

CHARLES A. HAMMEL.

Witnesses:

HENRY T. HAZARD,
G. E. HARPHAM.