Oct. 14, 1941. J. P. CAREY 2,259,201

OIL BURNING FURNACE FOR TOBACCO BARNS

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Fig. 10.

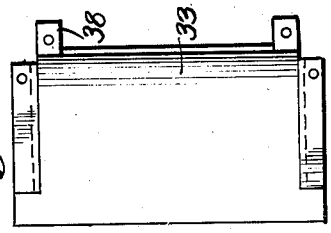

Fig. 9.

Fig. 1.

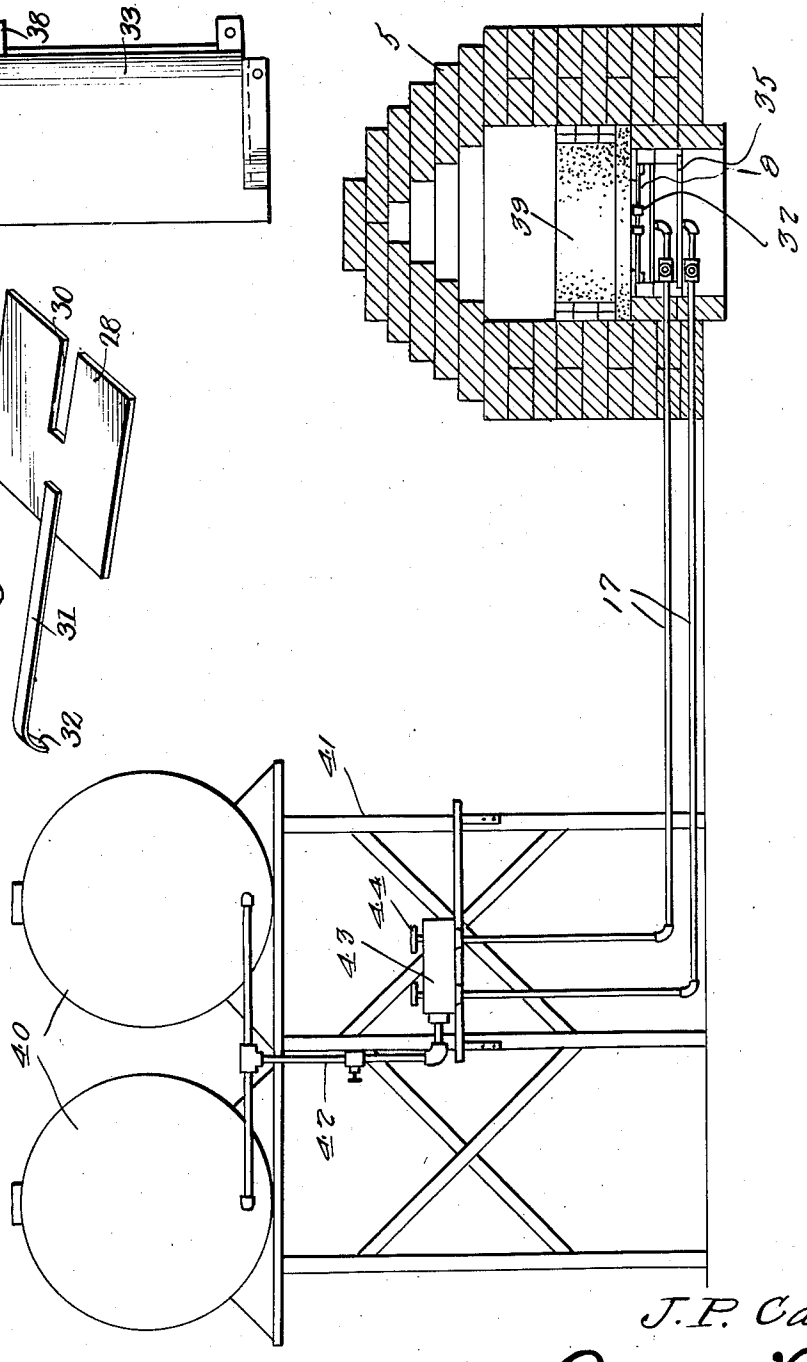

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Fig. 2.

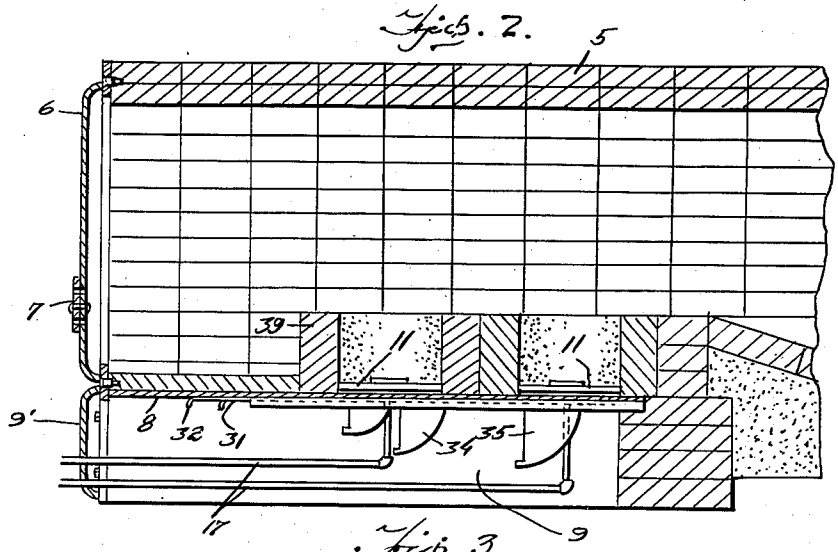
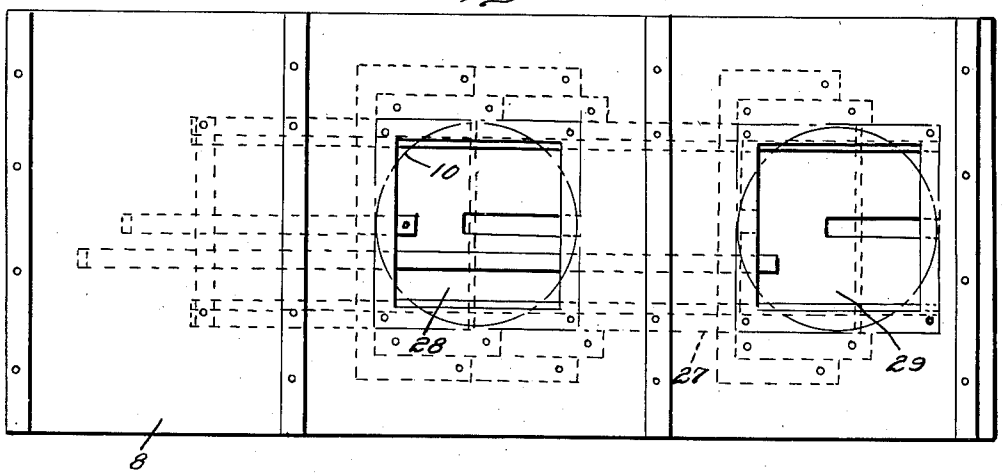


Fig. 3.



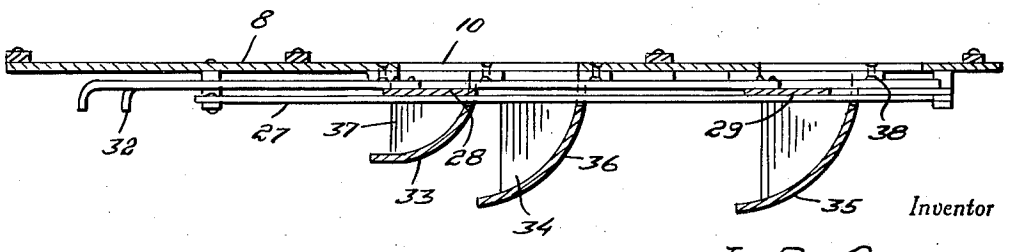


Fig. 4.

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Fig. 5.

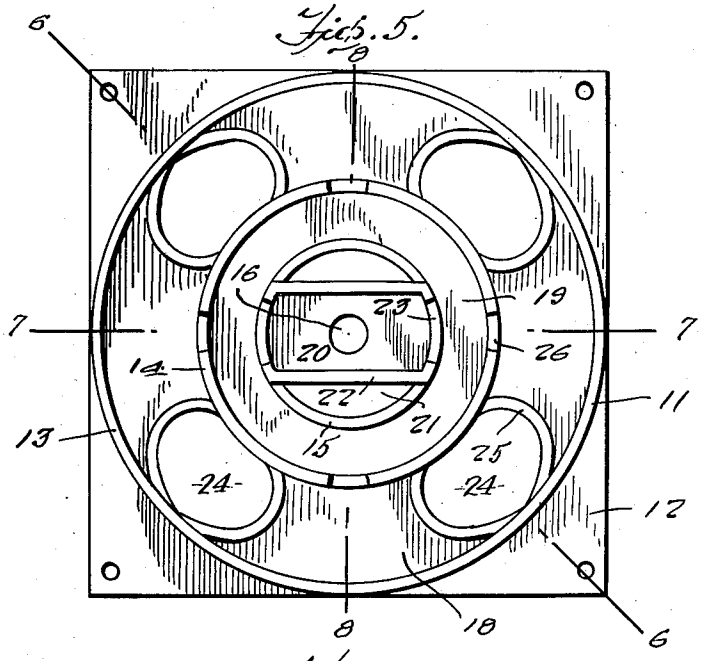


Fig. 6.

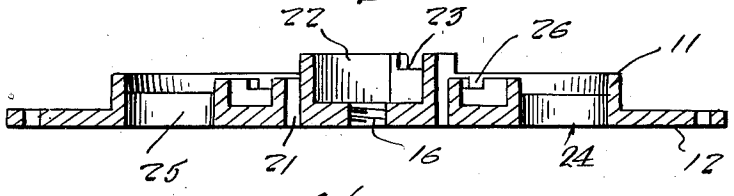


Fig. 7.

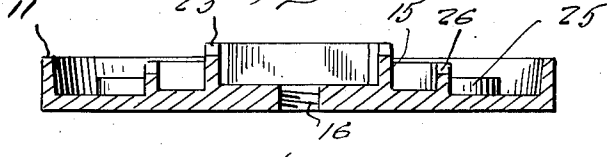
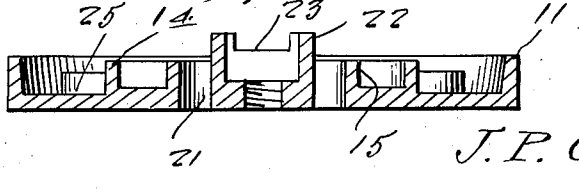


Fig. 8.



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Patented Oct. 14, 1941 2,259,201

UNITED STATES PATENT OFFICE

2,259,201

OIL BURNING FURNACE FOR TOBACCO BARNS

Jack Perry Carey, Kinston, N. C.

Application November 27, 1939, Serial No. 306,379

4 Claims. (Cl. 158—4)

The present invention relates to oil burning furnaces and has particular reference to an apparatus of this character designed for use in tobacco barns for supplying heated air to the barn to be used in the curing of the tobacco stored therein.

An important object of the present invention is to provide a burner construction adapted for mounting in position in the conventional type of wood burning furnaces such as heretofore used in tobacco barns and which includes a battery of oil burner elements having means for controlling the draft of air fed to the burners to promote the proper efficiency in combustion of the fuel.

A further object is to provide an apparatus of this character of simple and practical construction, which is efficient and reliable in performance, relatively inexpensive to manufacture and install in operative position and otherwise well adapted for the purposes for which the same is intended.

Other advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is an elevational view of the fuel supply system showing the furnace in section.

Figure 2 is a fragmentary longitudinal sectional view of the front end of the furnace.

Figure 3 is a top plan view of the burner mounting base.

Figure 4 is a longitudinal sectional view therethrough.

Figure 5 is a top plan view of one of the burners.

Figures 6, 7 and 8 are sectional views taken respectively on the lines 6—6, 7—7 and 8—8 of Figure 5.

Figure 9 is a perspective view of one of the draft slides and

Figure 10 is a top plan view of one of the draft baffles.

Referring now to the drawings in detail the numeral 5 designates the furnace generally which is constructed of fire brick, the front end of the furnace being closed by a metal plate 6 having a draft control plate 7 mounted therein. The rear portion of the furnace leads to the conventional flues (not shown), usually provided for conveying the heated air and gases throughout the barn.

In the bottom portion of the furnace is supported the metal burner mounting base 8 which is supported above the ground level to provide an air chamber 9 beneath the same, having a hinged door 9' the base being shown in details in Figures 3 and 4 and is constructed of sheet metal having a pair of circular openings 10 formed therein and over which are secured the burners designated generally at 11.

The burners are of open tray construction, preferably of cast iron and include a square shaped base 12 for attaching to the mounting base 8, and from which rises an outer circular burner wall 13, an intermediate circular burner wall 14 and an inner circular burner wall 15, said walls being concentrically arranged.

At the center of the burner is a threaded opening 16 for attaching an oil feed pipe 17 thereto.

Between the walls 13 and 14 is formed the outer oil tray or pan 18 while between the walls 14 and 15 is formed the intermediate oil tray or pan 19 and inwardly of the wall 15 is formed the inner oil tray or pan 20 which communicates directly with the opening 16 for supplying oil thereto.

At diametrically opposite sides of the tray 20 is formed a pair of air vents 21 which extend through the base 12, the tray 20 being separated from the openings by upstanding walls 22 which rise above the walls 15. At diametrically opposite sides of the walls 15 are formed overflow ports 23 which are below the upper edges of the wall 22 whereby to permit oil from the tray 20 to enter the tray 19.

At spaced intervals the tray 18 is formed with a plurality of vent openings 24 likewise extending through the base 12, each of the vent openings having upstanding walls 25 which terminate below the upper edges of the walls 13 and 14. The walls 25 for the vent openings 24 thus separate the tray 18 into a plurality of oil trays into which the oil is adapted to be fed through overflow notches 26 in the wall 14.

Secured to the underside of the mounting base 8 is a longitudinally extending guide 27 within which are slidably mounted draft slides 28 and 29 for the respective openings 10 over which each of the burners are mounted.

Each of the slides comprise a flat plate as illustrated in Fig. 9 of the drawings and provided at its inner edge with a longitudinally extending slotted opening 30 to accommodate the oil pipe 17, while the front edge of the slide is provided with a forwardly extending operating bar 31 having a downturned front end 32 to provide a convenient hand grip.

Also secured to the underside of the mounting base 8 are a plurality of baffles designated at 33,

34 and 35, each of the baffles including a downwardly and forwardly curved wall 36 and side walls 37 to provide a forward open end for the baffle, the curved wall 36 serving as a deflector for directing the air entering the chamber 9 upwardly through the vent openings in the burner. Attaching flanges 38 are provided at the upper edge of each baffle for securing the same to the underside of the mounting base 8. The baffles are of a successively increased size toward the rear of the mounting base so that the forwardly positioned baffles will not obstruct air from entering the rearwardly disposed baffles.

In the present embodiment of the invention a battery of two burners 11 is provided and the foremost burner is provided with a pair of the baffles 33 and 34, each baffle supplying air to a pair of the vent openings 24 of the burner. The rearmost burner is provided with a single baffle 35 which supplies air to the front pair of vent openings 24, the rear wall of the chamber 9 serving as a baffle for supplying the air to the rear pair of vent openings of the rear burner.

Rising from each of the burners 11 is a cylindrical wall defining a combustion chamber 39 which serves to confine the gases from the oil fed to the burners for proper combustion before the same enters the furnace 5.

The fuel is supplied by gravity by one or more tanks 40 mounted on a suitable stand 41 and from the tank a feed pipe 42 extends to a control chamber 43 to which the oil pipes 17 are connected. The control chamber 43 is provided with valves 44 for controlling the supply of fuel fed to the respective oil pipes 17.

It is believed the details of construction, advantages and manner of operation of the burner will be readily understood from the foregoing without further detailed explanation.

What is claimed is:

1. An oil burner for furnaces comprising a mounting base above the bottom of the furnace to provide an air chamber beneath the base, said chamber having communication with the atmosphere, an oil tray supported on the base and having air vents communicating with the chamber, each of the air vents having upstanding edges, said tray including a plurality of upstanding concentrically spaced walls defining a plurality of concentric oil pans and including an inner pan, an intermediate pan and an outer pan, said inner and outer pans having the vents extending therethrough, an oil feed pipe communicating with the inner pan, overflow notches in the upper edges of the walls, except the outermost wall, to feed oil to said pans and slides carried by the base for controlling passage of air through the vents.

2. An oil burner for furnaces comprising a mounting base above the bottom of the furnace to provide an air chamber beneath the base, said chamber having communication with the atmosphere, an oil tray supported on the base and having air vents communicating with the chamber, a slide carried by the base for controlling passage of air through the vents and baffles suspended in a row beneath the base, each of said baffles projecting downwardly below its adjacent forwardly disposed baffle for deflecting air entering the chamber into the vents.

3. An oil burning furnace comprising a shell for the furnace, a horizontal mounting base above the bottom of the shell to provide an air chamber beneath the base, said chamber having communication with the atmosphere, and said base having a plurality of openings therein providing communication between the chamber and the interior of the shell above the base, a burner tray secured in position over each opening, an oil feed pipe connected to each tray, air vents in each tray, means for controlling air passing through the vents and baffles for each tray having a forwardly projecting wall for deflecting air entering the chamber toward the openings of the base.

4. An oil burning furnace comprising a furnace shell having a horizontal metallic plate separating the furnace into upper and lower chambers, said lower chamber having communication with the atmosphere, said plate having openings therein, cylindrical walls rising from said openings and defining a series of combustion chambers communicating with the upper chamber of the furnace, a burner in the bottom of each combustion chamber and covering the opening associated therewith, said burners having vent openings communicating with the openings of the plate, a slidable closure for each opening of the plate and a manipulating handle for each closure extending in parallelism with each other.

JACK PERRY CAREY.