June 23, 1925. 1,543,235

J. SCHEMINGER, JR

OIL DISTRIBUTING HEAD

Filed April 17, 1924

Fig. 1.

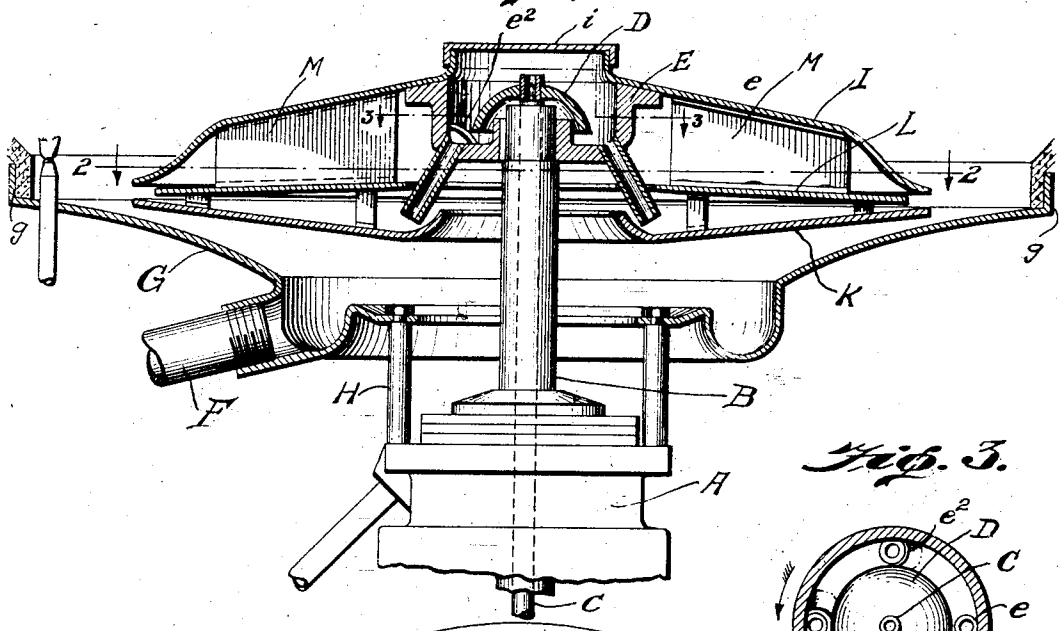
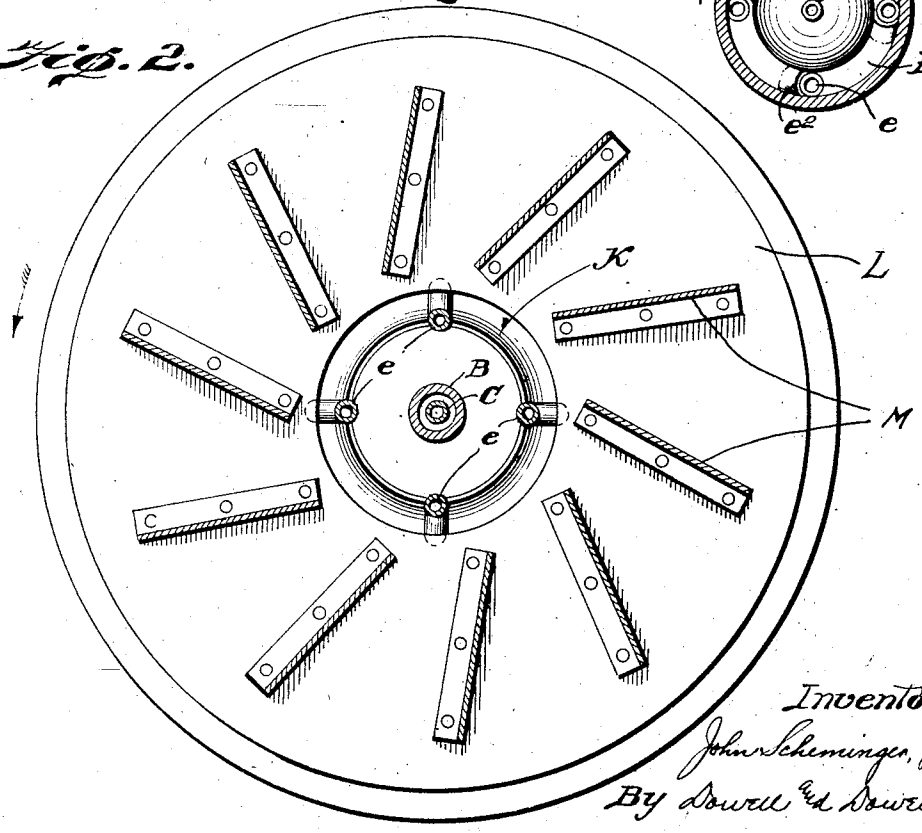


Fig. 3.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN SCHEMINGER, JR., OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO AETNA AUTOMATIC OIL BURNER, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

OIL-DISTRIBUTING HEAD.

Application filed April 17, 1924. Serial No. 707,267.

To all whom it may concern:

Be it known that I, JOHN SCHEMINGER, Jr., a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Oil-Distributing Heads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to hydrocarbon or rotary oil burners of the type shown in my Patent No. 1,442,786, dated January 16, 1923, and more particularly to an oil distributing head of improved construction.

The objects of the invention are to provide a simple, inexpensive and durable device for atomizing oil or other liquid fuel and mixing the same with air in suitable proportions to support combustion with greater efficiency and economy in the use of liquid fuel than is possible in using devices of this character as heretofore constructed.

The invention will first be hereinafter more particularly described, with reference to the accompanying drawings illustrating a preferred form of embodiment of my invention, and then pointed out in the claims at the end of the description. In said drawings,

Fig. 1 is a vertical sectional elevation of an oil distributing head embodying my invention; parts of the burner and its supporting base or standard being broken away;

Fig. 2 is a horizontal sectional plan view taken on the line 2—2 of Fig. 1, looking in the direction of the arrow; and

Fig. 3 is a detail sectional view taken on the line 3—3 of Fig. 1.

Referring to said drawings, in which the same reference letters are used to denote corresponding parts in different views, the letter A denotes a hollow supporting base or standard, within which a vertical tubular shaft B has its bearings. An oil feed pipe C extends up through the shaft B and on the projecting end thereof is secured a spreader D of inverted bowl-shaped form, over the surface of which oil issuing from the feed pipe is spread and delivered into a cup-shaped hub portion E of the distributing head. Below the distributing head there is a circular plate F having a central opening through which the shaft B extends and formed or provided with a trough-shaped portion *f* surrounding said opening and in communication with a discharge pipe G at one side, through which any surplus or waste oil may be returned to the source of supply, or conducted into a separate receptacle therefor. The outer edge or periphery of the troughlike plate has an upturned margin or flange *g* to effect a sealed joint connection with the fire clay or other material at the bottom of the fire-box or around the inner wall of the combustion chamber within which the distributing head may be placed, as shown, for example, in Fig. 2 of the drawings of my aforesaid patent. Said plate G serves as a drip pan and is mounted upon and secured to the hollow supporting base or standard A by means of tubular posts H and bolts passing therethrough and through alined holes in the plate and an annular flange or inner circumferential part of the plate; said bolts having threaded ends and nuts screwed thereon for securing the parts together. Within the lower plate or drip pan F, between it and a cover-plate I, is placed an annular distributing plate K, having a central opening through which the shaft B passes and having its inner edge around said opening upturned to prevent the fuel oil from escaping downwardly through said opening. The distributing plate K is secured to the under side of a superposed plate L, by means of hangers or brackets depending from the plate L and secured thereto and to the plate K by suitable fastening bolts passing through holes in the flanged ends of the hangers, or by spot-welding or other suitable means. The coverplate, which is of dish-shaped form, inverted, is supported upon the upper edge or marginal flange of the hub portion E of the distributing head, and has secured on the under side thereof the upper edges of a series of vertically disposed fan blades M, which are preferably disposed at an angle to the radius of the plate, and the intermediate plate L is secured to the lower edges of said series of fan blades, preferably by means of apertured flanges on the upper and lower edges of said fan blades and bolts passing through the apertures in said flanges and through registering apertures in the upper and lower plates. Said intermediate plate L is preferably arranged a greater distance below the cover plate

than the distance between it and the distributing plate K, and the peripheral portion thereof terminating short of the peripheral portions of the distributing and cover plates so that the air entering from below and passing out between the fan blades above the distributing plate is discharged upon or into an outgoing annular sheet or film of oil which is discharged or thrown out from the periphery of the oil distributing plate, between it and the periphery of the cover plate, thus enabling the air to catch up the oil and effect a thorough commingling of the oil therewith as it is discharged into the fire-box. The cover plate has a central opening therein around which there is an upturned marginal portion or flange over which is fitted a removable cap *i*. The bottom of the hub portion E is formed or provided with a series of holes in which are fitted pipe sections or tubes *e*, the lower ends of which project into the space between the bottom plate and the intermediate plate, for discharging fuel oil onto said bottom plate around the central opening therein to be spread over the surface thereof by centrifugal force. It may be desirable, in some cases, to provide within the hub portion of the distributing head, adjacent to its outer vertical wall, pocket-like projections e^2 adapted to gather oil thrown out by centrifugal force and direct the same into the tubes *e*.

It will be seen that the central plate of the distributing head is of less diameter than both the cover plate and the oil distributing plate, in order that the latter plates may closely approach each other at their outer edges and thus form a restricted annular space adapted to increase the discharge velocity of both air and oil.

Another important feature resides in locating the oil distributing plate at the bottom of the distributing head, thus interposing between it and the fire-box both the cover plate and the central or intermediate plate.

In operation, fuel oil entering by the feed pipe is spread over the concave surface of the bowl-shaped spreader and evenly distributed upon and around the bottom of the cup-like hub portion E from which the oil passes through the tubes onto the concave surface of the distributing plate K surrounding the central opening therein, and as said distributing plate is rotated the oil is spread evenly and uniformly over the surface thereof and discharged at its periphery through the restricted opening between the peripheral portion thereof and the periphery of the intermediate plate and the overlying periphery of the cover plate, at which point air, entering from below the drip pan and drawn upwardly along the central space around the vertical shaft and between the fan blades is caused to pass out through said restricted opening and thus effect a thorough commingling of the air and gas, and this mixture is carried outwardly and upwardly by the induced current of air into the fire-box or combustion chamber for supporting combustion.

It will be observed that the oil distributing plate is located at the bottom of the distributing head and that between it and the fire-box is interposed both the cover-plate and the intermediate plate carried by the cover-plate and separated therefrom by the fan, so that the distributing plate and the oil thereon are protected from the intense heat of the fire-box and furthermore, a rapidly moving body of air is interposed between the cover-plate and the distributing plate, so that the oil on the surface of the latter plate is kept at a moderate temperature until it is forcibly discharged into the fire-box commingled with the current of air issuing through the same restricted outlet.

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

1. In a rotary oil burner, a distributing head comprising an annular distributing plate having a central opening therein and a superposed cup-shaped hub portion carried by a vertical tubular shaft, a cover plate of substantially dish-shaped form inverted supported on said hub portion, an annular plate supported between the first named plates having a central opening therein and terminating short of the peripheries of said top and bottom plates; the peripheral portions of said top and bottom plates terminating in close proximity to the periphery of said intermediate plate; said shaft extending up through the central openings in said intermediate and bottom plates, and said cover plates having secured on the under side thereof a series of fan blades to the lower edges of which said intermediate plate is secured, and said bottom plate being connected with and carried by said intermediate plate.

2. In a rotary oil burner, a distributing head comprising an annular bottom plate having a central opening therein with the surrounding edge thereof upturned a cup-shaped hub portion carried by a vertical tubular shaft which extends up through said opening, a top or cover plate of substantially dish-shaped form inverted supported upon said hub portion, an annular plate supported by and between said top and bottom plates and discharge tubes extending downwardly from said hub portion through said intermediate plate into the fuel delivery space around the upturned edge of the central opening in said bottom plate; said top plate having secured on the upper side thereof a series of vertically disposed plates or

fan blades to the lower edges of which said intermediate plate is secured, and said bottom plate being connected with and carried by said intermediate plate.

3. A distributing head comprising an annular rotary distributing plate, a cover plate therefor of substantially dish-shaped form inverted; said cover plate being supported upon a cup-shaped hub portion carried by a tubular shaft which extends up through said distributing plate, an annular plate supported between the first named plates and having a central opening therein through which said shaft extends; the peripheral portions of said top and bottom plates terminating in close proximity to the periphery of said intermediate plate and the periphery of the latter terminating short of the peripheries of said top and bottom plates; said top plate having secured on the under side thereof a series of vertically disposed plates or fan blades to the lower edges of which said intermediate plate is secured, and said bottom plate being connected with and carried by said intermediate plate.

4. In combination with a supporting base or standard, a vertical shaft carrying an annular oil distributing plate having a central opening therein through which the shaft extends and having its inner edge upturned, said shaft having its bearings in said standard and having secured on the upper end thereof a cup-shaped hub member supporting a cover-plate, an annular plate arranged between said distributing and cover-plates, a feed pipe extending up through said shaft, a spreader of bowl-shaped form inverted on the delivery end of said feed pipe over which the oil is discharged into said cup-shaped hub member, the latter having discharge ports in its bottom and tubes or pipe sections connecting said ports with the space around the central opening in said distributing plate between it and the inner circumference of said intermediate plate.

5. In combination with a supporting base or standard, a tubular vertical shaft having its bearings in said standard, a feed pipe extending up through said shaft and having secured on the upper end thereof an oil spreader of bowl-shaped form, a distributing head comprising an annular distributing plate having a cup-shaped hub portion mounted on said shaft, a cover plate of substantially dish-shaped form inverted supported upon said cup-shaped hub portion, an annular plate supported between said first named plates and having a central opening therein through which said shaft extends; the peripheral portions of said top and bottom plates terminating in close proximity, and said intermediate plate terminating short of the terminals of said top plate; said cup-shaped hub portion having discharge ports in its bottom and tubes or pipe sections connecting said ports with the space around a central opening in said distributing plate between it and the inner circumference of said intermediate plate.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN SCHEMINGER, JR.

Witnesses:
B. M. OFFUTT,
THOMAS F. BURKE.