No. 784,434. PATENTED MAR. 7, 1905.

S. D. ROSER.

OIL BURNER.

APPLICATION FILED JAN. 19, 1905.

Fig. 1.

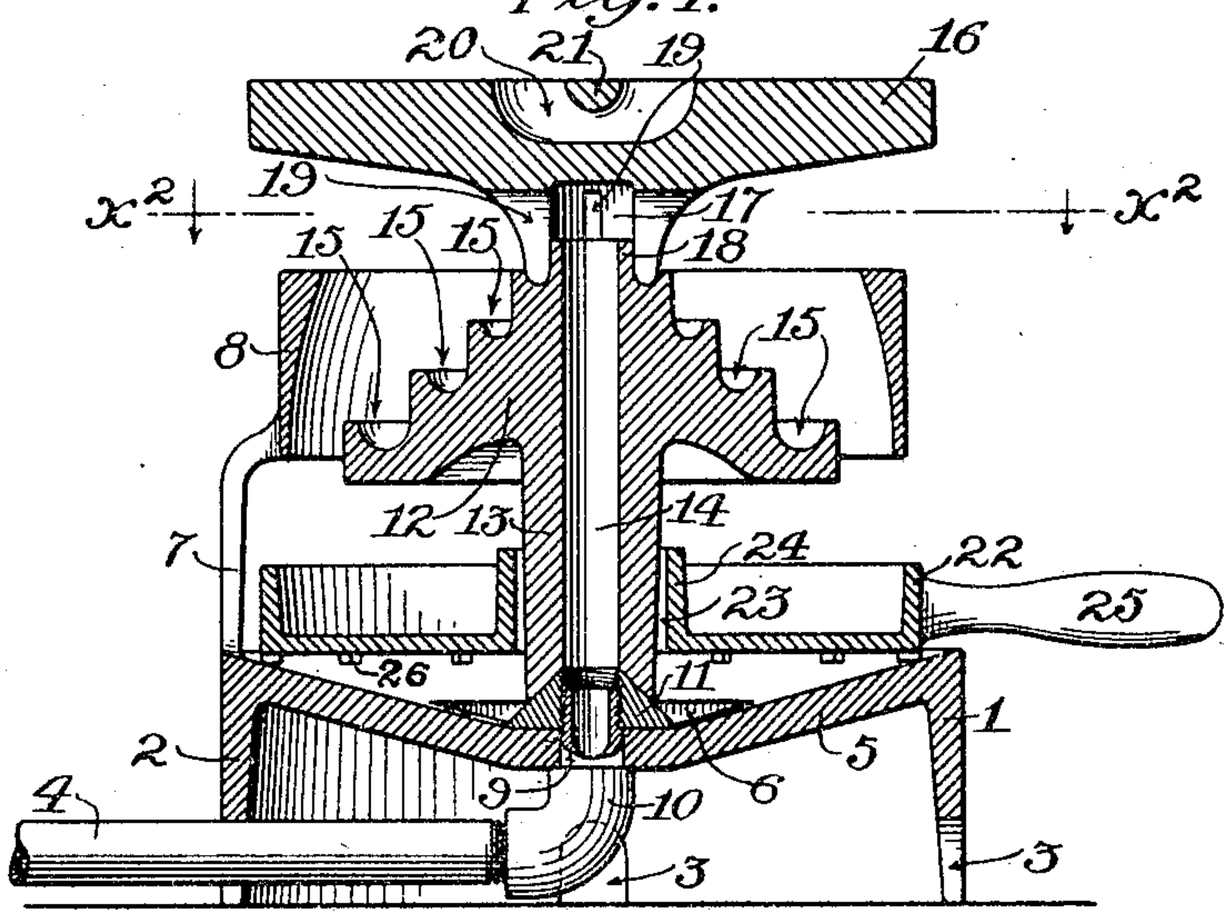
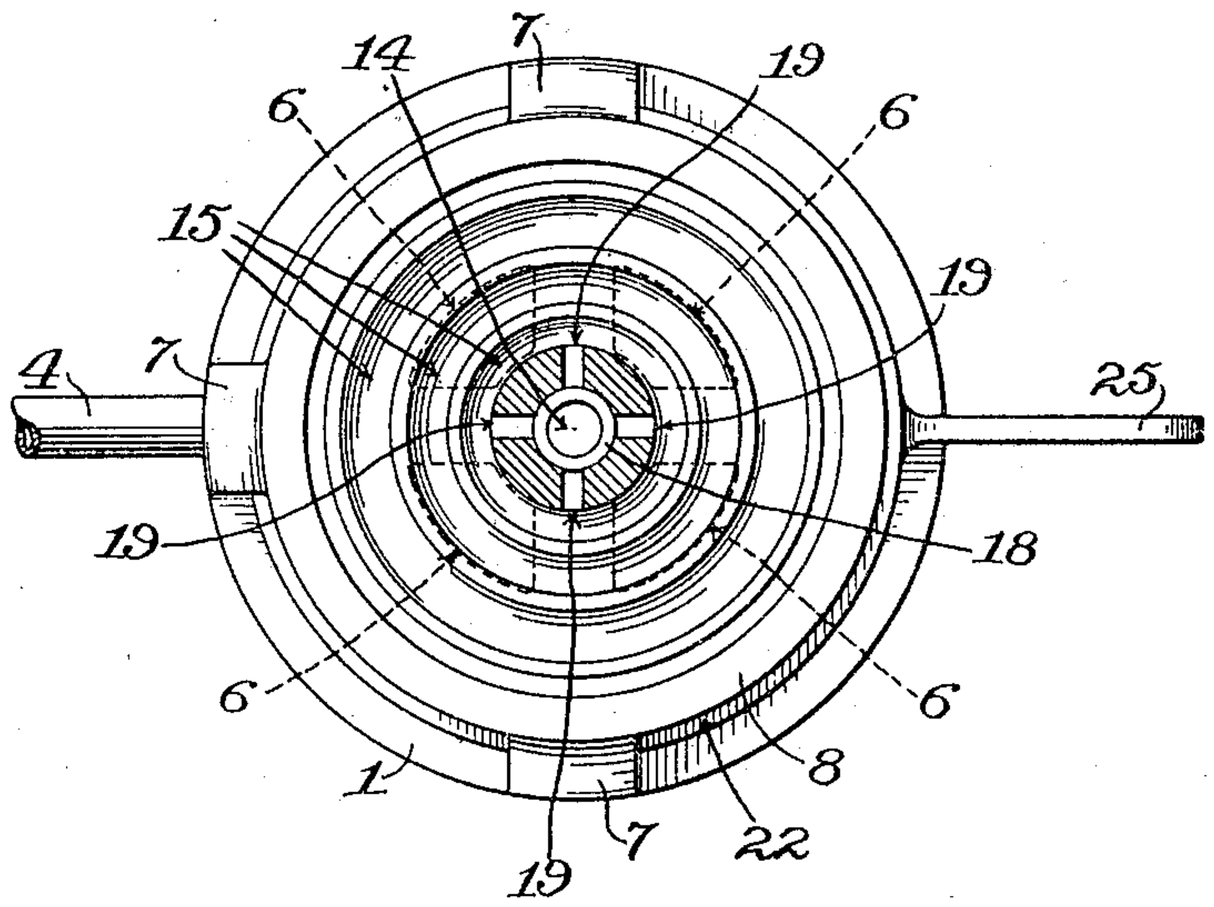


Fig. 2.



Witnesses:-
Frank L. Graham.
George T. Hackley

Inventor;
Samuel D. Roser.
by Townsend Bros
His Attys

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No. 784,434. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

SAMUEL D. ROSER, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO RAYMOND MANUFACTURING COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF ARIZONA TERRITORY.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 784,434, dated March 7, 1905.

Application filed January 19, 1905. Serial No. 241,735.

To all whom it may concern:

Be it known that I, SAMUEL D. ROSER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Oil-Burner, of which the following is a specification.

This invention relates to a burner designed for burning crude oil, distillate, and the like; and the object of the invention is to provide a burner which is simple in construction, effective in operation, durable in use, and which can readily be taken apart for cleaning.

Other objects and advantages will appear from the following description.

The accompanying drawings illustrate the invention, and, referring thereto, Figure 1 is a vertical cross-section taken diametrically through the burner. Fig. 2 is a cross-section on the line X^2 X^2 in Fig. 1.

The burner comprises a base 1, which has an annular supporting-rim 2, provided with four openings 3, through either of which a fuel-inlet pipe 4 may pass. The upper part of the base 1 is dished downwardly, forming a table 5, having four segmental slots or openings 6, which lie near its central portion.

Projecting upwardly from the outer edge of the table 5 are three standards 7, which support a draft-ring 8, the inner bore of which is bell-shaped, the upper inner edge of the ring 8 being smaller than the lower inner edge, as clearly shown in Fig. 1. The segmental openings 6 are so arranged that they lie opposite the open spaces between the standards 7, thus allowing a free entrance of air therethrough.

The central portion of the table 5 is drilled to receive a nipple 9, the lower end of which is connected by an elbow 10 with the fuel-inlet pipe 4, the upper end of the nipple 9 being externally threaded and projecting above the table 5 and having screwed thereto a hollow thimble 11, the upper end of which is conical, as shown, the conical part preferably having a ground finish.

Surmounting the table 5 is a conical vaporizer 12, having a depending stem 13, the lower end of which is cupped, with a ground finish, and nests upon the conical upper end of the thimble 11, thus forming a close tight-fitting joint between the stem 13 and thimble 11. The vaporizer 12 has a central passageway 14, which communicates with the thimble 11, nipple 9, and fuel-inlet pipe 4. The outer surface of the vaporizer 12 is provided with a series of annular grooves or gutters 15, arranged one above the other and graduated in size, the lowest groove being the largest and the highest groove being the smallest. The vaporizer 12 lies within the draft-ring 8, and its lower edge is arranged slightly below the lower rim of the ring 8.

Surmounting the draft-ring 8 and supported by the vaporizer 12 is a spreader 16, the lower face of which is flared downwardly from the edge and merges at the center into a depending annular hub 17, the lower rim of which is rounded and fitted within the uppermost gutter 15, the vaporizer 12 having at its extreme upper end a flange 18, which closely fits within the bore of the hub 17. The hub 17 is slotted diametrically to provide fuel-outlets 19, which communicate with the interior of the hub 17 and discharge outwardly directly underneath the lower face of the spreader 16. The upper face of the spreader 16 is recessed at 20, with a bridge 21 forming a convenient handle for lifting the spreader from the vaporizer. The diameter of the spreader 16 is somewhat greater than the diameter of the draft-ring 8, as shown.

Resting upon the table 5 is an annular starting-pan 22, having bosses 26, which rest upon the upper face of the table 5, thus supporting the bottom of the pan slightly above the table. The starting-pan 22 has a central opening 23, with an annular flange 24, which fits loosely around the stem 13 of the vaporizer and is somewhat higher than the outer rim of the pan, while projecting from one side of the starting-pan 22 is a handle 25. In the event of more oil being allowed to pass into the burner than can be consumed the excess flows

down from the vaporizer into the starting-pan and over the outer edge thereof onto the dished table 5, flowing down toward the center of the latter and out through the openings 6, the high flange 24 preventing overflow of the oil at that point.

In starting up the burner the oil is admitted through the pipe 4 and passes up through the nipple 9, thimble 11, and vaporizer 12, flowing out over the top thereof and through the slots 19 and trickles down over the vaporizer, passing from gutter to gutter. Preliminary ignition is given to the oil from the starting-pan 22, and the flames therefrom pass upwardly inside of the draft-ring 8, being deflected slightly inwardly by the bell-shaped bore thereof and then being deflected outwardly by the spreader 16. After burning in this manner a short time the vaporizer 12 (also the spreader 16) becomes highly heated, and the oil as it passes up inside of the vaporizer is so highly heated that as it issues from the slots 19 it is ready to be converted into gas. Most of the highly-heated oil which escapes through the slots 19 is converted into gas by heat. The heavy constituents of the oil which have not been converted into gas, such as asphaltum, &c., will in passing down the vaporizer 12 accumulate in the gutters 15, so that after the burner has been in use for some time it will require cleaning, as will also the starting-pan 22, as the latter will also become coated more or less with solids from the oil. Air enters under the draft-ring 8 and passes upward, mingling with the flames, which are deflected by the spreader 16. Air also enters through the openings 3 and passes up through the spaces 6 and serves to cool and prevent overheating of the table 5. It then passes up through the space between the flange 24 and stem 13 and also mingling with the flames.

The object of employing the gutters 12 is to prevent a too rapid downward movement of the oil over the vaporizer, the gutters retaining sufficient quantities for burning. By restricting the flow of oil so that only the uppermost gutter is kept supplied a relatively low fire is maintained, while a larger fire is obtained by increasing the flow so that oil will be supplied to more of the gutters.

While I have shown and described one form of the invention, it should be understood that various changes may be made without departing from the spirit of the invention.

What I claim is—

1. An oil-burner comprising a base having a dished table, a nipple screwed thereto, a thimble attached to the nipple and having a conical upper portion, a vaporizer having a depending hollow stem with a conical recess in the bottom thereof closely fitting the conical upper end of the thimble, the contacting faces being ground to fit and forming a tight but separable joint, a draft-ring girdling the vaporizer, and a spreader above the vaporizer.

2. An oil-burner comprising a base having a downwardly-directed rim with openings therein at suitable intervals for receiving a fuel-pipe, the upper part of the base comprising a dished table, a thimble above the table, a vaporizer resting upon the thimble, fitting the same with a tight joint, but being unattached thereto, the vaporizer being conical with a series of annular gutters formed therein and graduated in size, a draft-ring around the vaporizer and having a bell-shaped bore, and a spreader above the vaporizer.

3. An oil-burner comprising a base having a downwardly-directed rim with openings therein at intervals for receiving a fuel-pipe, the upper part of the base comprising a dished table, a thimble above the table, a vaporizer resting upon the thimble, fitting the same with a tight joint but being unattached thereto, the vaporizer being conical with a series of annular gutters formed therein and graduated in size, a draft-ring around the vaporizer and having a bell-shaped bore, a spreader above the vaporizer, and an annular starting-pan under the vaporizer resting upon the dished table.

4. An oil-burner comprising a base, a thimble on the base having a conical top, a vaporizer above the base having a downwardly-extending stem conically cupped at the bottom and resting upon the conical thimble, the upper end of the vaporizer having a flange, a spreader having a depending annular hub with radial slots which fits over the flange on the vaporizer, the lower parts of the slots being closed by the flange, leaving the upper parts free.

5. An oil-burner comprising a base, a thimble on the base having a conical top, a vaporizer above the base having a downwardly-extending stem conically cupped at the bottom and resting upon the conical thimble, the upper end of the vaporizer having a flange, a spreader having a depending annular hub with radial slots which fits over the flange on the vaporizer, the lower parts of the slots being closed by the flange, leaving the upper parts free, and a draft-ring around the vaporizer having a bell-shaped bore with standards formed integral with the draft-ring and base.

6. An oil-burner comprising a base, a thimble on the base having a conical top, a vaporizer above the base having a downwardly-extending stem conically cupped at the bottom and resting upon the conical thimble, the upper end of the vaporizer having a flange, a spreader having a depending annular hub with radial slots which fits over the flange on the vaporizer, the lower parts of the slots being closed by the flange, leaving the upper parts free, and a draft-ring around the vaporizer having a bell-shaped bore with standards formed integral with the draft-ring and base, and an annular starting-pan around the stem of the vaporizer and resting upon the base.

7. An oil-burner comprising a base with a dished table, a nipple screwed to the table, a thimble screwed to the nipple above the table, a fuel-pipe connected with the nipple, a draft-ring formed integrally with the base being connected therewith by standards, a vaporizer resting upon the thimble but unattached thereto, a spreader resting upon the vaporizer but unattached thereto, and an annular starting-pan below the vaporizer resting upon the dished table.

In testimony whereof I have hereunto set my hand at Los Angeles, California, this 12th day of January, 1905.

SAMUEL D. ROSER.

In presence of—

GEORGE T. HACKLEY,
EARL A. R. LYNN.