March 12, 1929. L. P. ROLLINS ET AL 1,705,310

AUTOMATICALLY OPERATED OIL BURNER

Filed April 4, 1928.

Fig. 1.

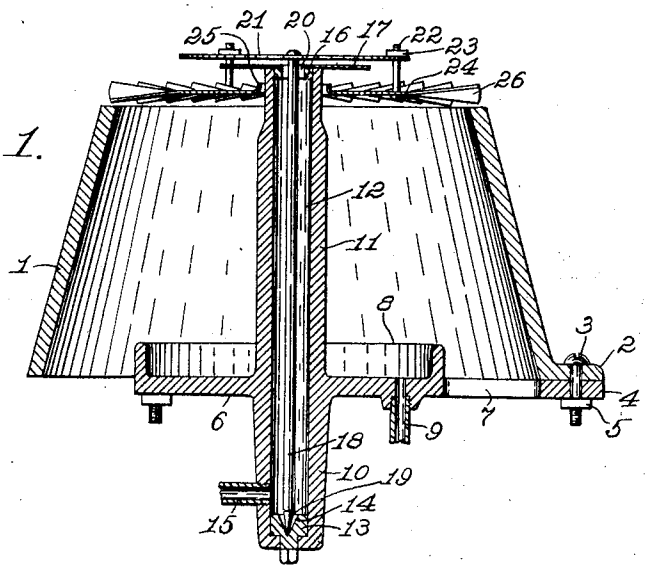
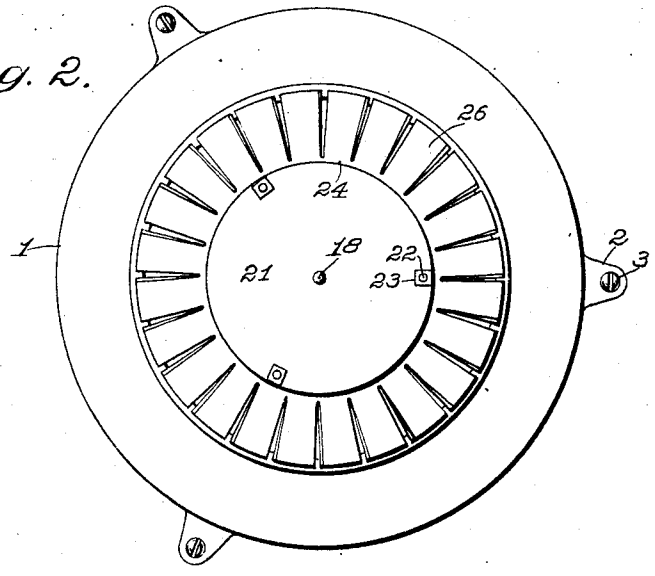


Fig. 2.



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UNITED STATES PATENT OFFICE.

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AUTOMATICALLY-OPERATED OIL BURNER.

Application filed April 4, 1928. Serial No. 267,280.

Our invention relates to improvements in oil burners, and the object of our improvements is to furnish a simple, inexpensive and automatic device of this class for use in furnaces or otherwise.

This object we have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which Fig. 1 is a central axial and vertical section of our improved oil burner, and Fig. 2 is a top plan thereof.

Our invention is not restricted to the precise construction and arrangement of parts herein shown and described, nor to the various details thereof, as the same may be modified or rearranged in various particulars without departing from the spirit and scope of our invention, one practical embodiment of which has been herein illustrated and described without attempting to show all of the various forms and modifications in which our invention might be embodied.

Our device comprises an upwardly coned hollow inclosure 1 having several outwardly directed horizontal bottom lugs 2 secured by bolts 3 and nuts 5 to registering end lugs 4 of a basal member 6 which has openings 7. The upper end of the inclosure 1 is open. The basal member 6 is shaped with a circular central portion 8 with raised rim as an oil drip cup around and integral with an axial and fixed hollow cylindrical oil delivery conduit 10—11 whose upper portion above the cup 8 traverses the hollow of the inclosure 1 centrally to project terminally thereabove and has a spreader discoidal or annular plate 17 fixed upon its upper end over a constricting annulus 16 fixed in the upper part of the bore of the conduit, which thus limits the delivery of oil upwardly over and upon said plate 17. The lower end of the conduit 10 which depends below said inclosure 1 is closed by a plug 13 sealed therein which has an upwardly opening conical step bearing hollow 14 to step therein antifrictionally the conical lower end of a rotary axial shaft 18 centrally in the hollow 12 of the conduit and to project above said spreader plate 17 to carry fixedly a somewhat wider circular plate on its upper end at 21.

The numeral 24 denotes a disk positioned below the spreader plate 17 and just above the open top of the inclosure 1 and whose marginal part is cut and shaped with a number of circumferentially arranged inclined vanes 26. The inner raised rim of the disk at 25 surrounds the upper and diminished termination of the conduit part 11 in spaced relation and horizontally. Bolts 22 and nuts 23 secure fixedly the disk 24 to and depending from the top plate 21 outside of and below the spreader plate 17.

The lower conduit part 10 has a threaded aperture to seat a threaded end of an oil supply pipe 15 which should lead to a tank of fuel oil under head. The drip cup 8 has in its bottom a threaded hole in which is secured the threaded end of a conduit 9 to drain oil from the cup to a suitable receptacle not shown.

The inclosure 1 may be mounted in the fire-pot of a furnace rigidly in any desired manner. The oil pipe 15 may have a suitable valve not shown to control its delivery to the conduit 10—11.

When it is desired to operate the burner, oil is supplied the conduit 10—11 under head which oil issues at the top flowing equally outwardly radially over the circular spreader plate 17 and dropping in drops upon the disk 24 inside the vanes 26 but which, when the disk and vanes are rapidly rotating is thrown out upon and from the vanes horizontally around the upper edge of the inclosure 1, being atomized there in a misty condition and mingled with air constantly drawn by suction through the conical inclosure 1 and then through the interstices of the vanes. The disk 24 and its vanes 26 are initially thrown into rotation manually while a piece of blazing paper or other material is held near the vanes which pick up and atomize and deliver the oil into the zone in which the igniting material is positioned, igniting the oil, and which causes a wide annular zone of flame around the vanes which are kept automatically in rotation by the pressure of the constantly supplied draft of air passing through the inclosure 1. This air draft keeps the conduit 10—11 cool, necessary in this class of oil burners. Any overflow of oil from the disk 24 passes into the cup 8 and drains away by the pipe 9. Oil delivery and relative speed of the vanes are valve controlled, as specified by valve in pipe 15.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is:

An oil burner, comprising in combination, an open end inclosure, a conduit in communication with a supply of fuel oil under head and traversing said inclosure centrally to have its upper delivery end project thereabove the lower end of the conduit being closed by a step-bearing, said conduit having a concentric encircling oil drip-cup within the lower part of said inclosure, said drip cup having drainage means, an annular spreader plate mounted concentrically around the upper end of the conduit to receive oil therefrom, a shaft mounted axially within said conduit and stepped in said step-bearing and projecting above the conduit and inclosure, said shaft being spaced from the inner wall of the conduit, a disk secured coaxially upon the upper termination of said shaft, an annular plate positioned below the spreader plate coaxially and rotatably and above the top of said inclosure, said annular plate having peripheral vanes, and connecting means between said disk and said annular plate, said spreader plate being adapted to deliver oil from said conduit upon said annular plate, whereby centrifugal force of the rapidly rotating annular plate drives the oil upon said vanes which atomize the oil while propelling it radially outwardly through moving air supply travelling out of the top of said inclosure.

In testimony whereof we affix our signatures.

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