This invention relates to oil burners and more particularly to an oil burner adapted for use in connection with a locomotive although it may be installed in stationary boilers or in other apparatus.

One object of the invention is to provide an oil burner of the gravity type which is very simple in construction, cheap to manufacture and of such construction that it can be very easily taken apart for cleaning and reassembled.

Another object of the invention is to produce an oil burner which may be formed almost entirely as a single casting and consists of a very few parts.

Another object of the invention is to provide an oil burner having an upper oil compartment and lower steam compartment, means being provided in the upper compartment to control flow of oil through the same and prevent the oil from drifting towards one side of the burner when a locomotive is turning a curve in a track or for any other reason not upon an even keel.

Another object of the invention is to provide improved means for cleaning the outlet nozzle at the front of the steam compartment across which oil flows from an apron at the front of the oil compartment and permit this cleaner to be actuated by an operator of the engine cab.

Another object of the invention is to so construct and mount the cleaner that it will normally remain in a retracted inoperative position and at all times be shielded from exposure.

Another object of the invention is to provide an oil burner wherein the bottom projects forwardly beyond the steam outlet and apron and prevents oil from dripping upon the ground and wasting.

This invention is illustrated in the accompanying drawings wherein:

* Figure 1 is a side elevation of the improved oil burner.
* Figure 2 is a top plan view of the oil burner.
* Figure 3 is a longitudinal sectional view taken vertically through the burner.
* Figure 4 is a horizontal sectional view taken along the line 4-4 of Figure 3.
* Figure 5 is a transverse section taken along the line 5-5 of Figure 1.
* Figure 6 is a section taken along the line 6-6 of Figure 1.

This improved oil burner has a body formed as a casting and having side walls 1 joined at their rear ends by a rear wall 2 of less thickness than the side walls. The rear wall extends downwardly below the side walls and from its lower portion extends a cylinder 3 cast integral with the rear wall and having its rear end portion internally threaded and closed by a threaded plug 4. The interior of the body is divided into an upper oil compartment 5 and lower steam compartment 6 by a partition 7 extending longitudinally in the body horizontally thereof and integrally joined to the side and rear walls and it should be noted that the forward end portion of this partition slopes downwardly at a forward incline to form an apron 8. The upper and lower walls 9 and 10 are formed separate from the body and releasably secured by screws 11 passed through openings formed near their side edges and engaged in threaded pockets formed in the side walls of the body. Therefore, the top and bottom can be easily removed when cleaning or repairs are necessary and the burner then reassembled.

Carbon is liable to form at the outlet or nozzle and in order to permit the carbon to be removed and the nozzle kept clean there has been provided a cleaning plate 12 which rests upon the bottom 10 with its side edge portions engaged in grooves 13 formed in the side wall 1 in order to guide sliding movement of the plate. At its rear end the plate is secured by a bolt 20 to a rod 21 extending longitudinally in the steam chamber with its rear portion projecting through an opening 22 formed in the rear wall 2 into the cylinder 3 and carrying a disk 23 serving as a piston. A spring 24 coiled about the rod between the piston and wall 2 yieldably holds the rod in a normal position with the plate 18 retracted as shown in Figure 3 in order that steam may flow freely through the outlet 13 and when it is necessary to clean the outlet the rod is to be moved forwardly in order to slide the plate outwardly through the outlet and scrape carbon loose.

Steam is to be employed to force the rod forwardly and the steam is admitted to the rear portion of the cylinder through a pipe 24' screwed into a threaded opening formed in the plug 4 closing the rear end of the cylinder. This pipe leads to a source of supply upon the engine and intermediate its length is provided with a valve 25 preferably located in the cab of the locomotive where it can be easily reached by the fireman. Therefore, when the outlet needs cleaning the valve may be opened to admit steam to the cylinder 3 without the fireman leaving the cab. The valve is a three-way valve and therefore when it is turned off steam in the cylinder can escape and the spring 24 return the piston and rod to the position shown in Figure 3 and retract the
2 cleaning valve. It will be understood that compressed air can be used to force the piston and rod forwardly instead of steam if so desired. 

Lugs 26 formed upon the plug 4 permit it to be engaged with a wrench and easily removed or screwed tightly into place.

Oil is fed into the upper chamber 5 through a pipe 12 leading from a suitable source of supply and screwed into a threaded opening formed in the upper wall or top 9 and this oil flows forwardly along the partition and down the apron 8 from the lower edge of which it passes across an outlet or nozzle 13 formed at the front of the lower chamber 6 by the apron terminating in a spaced relation to the bottom 10. Steam from a source of supply enters the steam chamber through a pipe 14 and after moving forwardly passes out through the outlet 13 and by its heat converts the oil into vapor with which the steam mixes and forms a combustible mixture which is ignited by a pilot in the fire-box or a boller or in any other manner desired. The bottom 10 is extended forwardly beyond the outlet 13 as shown at 15 to form a platform serving to catch oil dripping from the apron and prevent the oil from being wasted. In order to guide the flow of oil through the chamber 5 and prevent it from drifting towards one side thereof when the locomotive is leaning towards one side, there has been provided fins 16 which extend longitudinally in the oil chamber and are disposed vertically therein with their lower edges integrally jointed to the partition. It should be noted that the front ends of the fins terminate at the upper end of the apron 8 and their rear ends are in such spaced relation to the rear wall that a reservoir 17 is formed in which oil gathers as it flows into the oil chamber from the pipe 12 and then flows forwardly between the fins. Therefore, the oil will be divided into streams as it flows forwardly and evenly distributed upon the apron.

While we have shown a preferred embodiment of our invention it is to be understood that minor changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what we claim is:

1. In an oil burner, a hollow body open at its front and having a top and a bottom, a partition dividing the body into an upper oil compartment and a lower steam compartment, an apron extending from the front end of said partition with its lower edge spaced from the bottom to form an outlet, means for supplying oil and steam to said compartments, a cylinder extending rearwardly from said body back of the lower compartment and provided with a fluid inlet, a piston in said cylinder having a rod extending into the lower compartment, a cleaning plate resting upon said bottom and connected with the front end of said rod and moving through the outlet to clean the outlet when the rod and piston are moved forwardly, and means to yieldably resist forward movement of the rod and piston.

2. In an oil burner, a hollow body open at its front and having a top and a bottom, a partition dividing the body into an upper oil compartment and a lower steam compartment, an apron extending from the front end of said partition with its lower edge spaced from the bottom to form an outlet, means for supplying oil and steam to said compartments, the bottom being extended at its front beyond the apron to form an oil catching platform, a cleaning plate slidable in the lower compartment and movable through the outlet, a cylinder, a piston in said cylinder connected with said plate to cause movement of the plate with the piston, and means for yieldably resisting movement of the piston in one direction.

3. In an oil burner, a hollow body open at its front and having a top and a bottom, a partition extending longitudinally in said body and dividing the body into an upper oil compartment and a lower steam compartment, an apron extending from the front end of said partition with its lower edge spaced from the bottom to form an outlet, means for supplying oil and steam to said compartments, a cleaning plate for the outlet slidable longitudinally in the steam compartment and resting upon the bottom with its side edge portions engaged in grooves formed in side walls of the body, a cylinder back of the steam compartment, an actuating rod for said cleaner plate extending from the plate into said cylinder, a piston in said cylinder at the rear end of said rod and a spring engaging said piston to yieldably resist forward movement of the piston and rod.

4. In an oil burner, a hollow body open at its front, a partition dividing said body into an upper oil compartment and a lower steam compartment and serving as means for directing oil across the open front end of the steam compartment, means for supplying oil and steam to said compartments, a cleaner in the steam compartment movable through the open front end thereof, a cylinder having an inlet for fluid under pressure, a piston in said cylinder connected with said cleaner for projecting the cleaner outwardly when the piston is moved by fluid pressure, and means yieldably resisting such movement and normally retaining the cleaner in a retracted position.

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