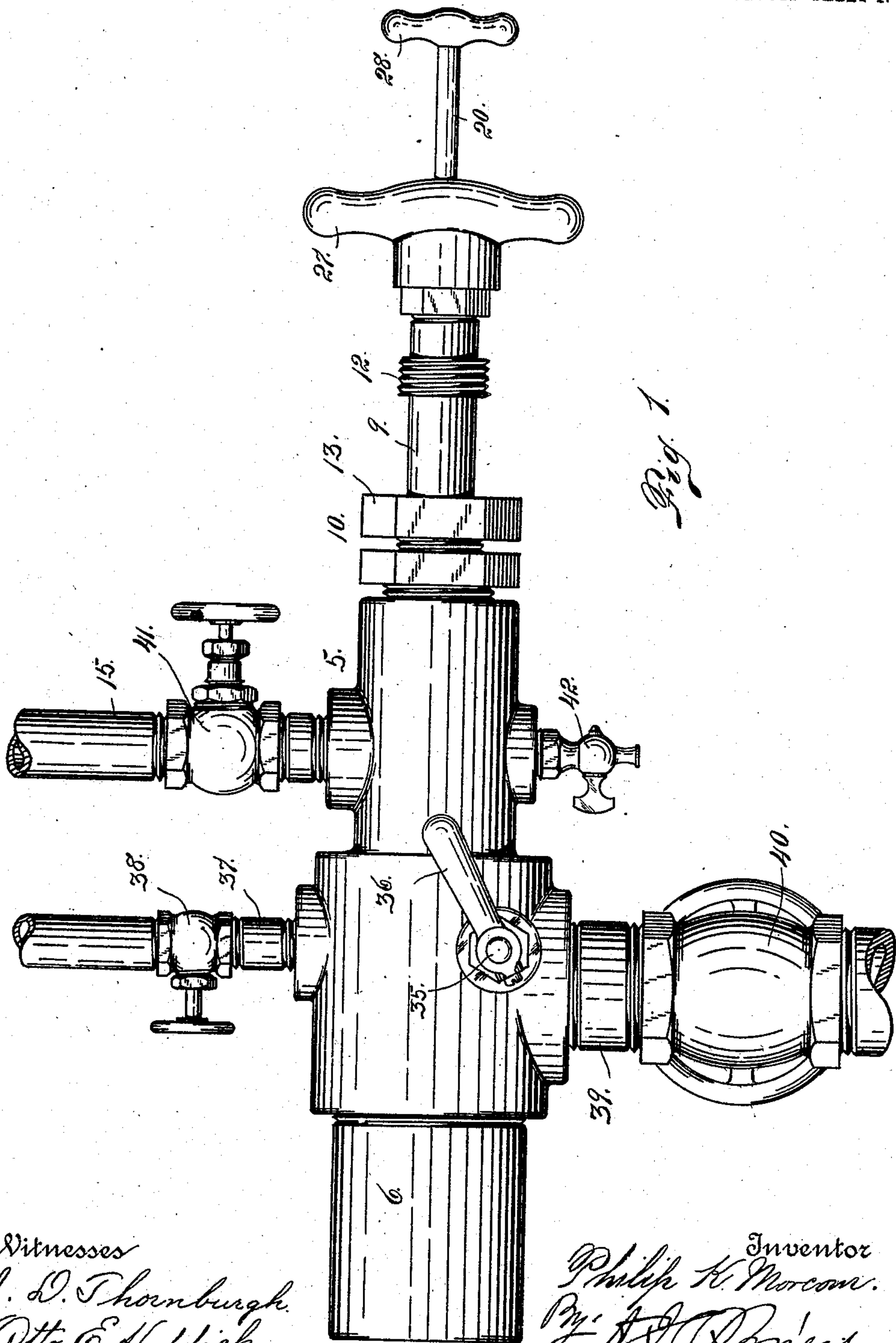


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APPLICATION FILED MAY 21, 1908.

924,566.

Patented June 8, 1909.  
2 SHEETS—SHEET 1.



Witnesses  
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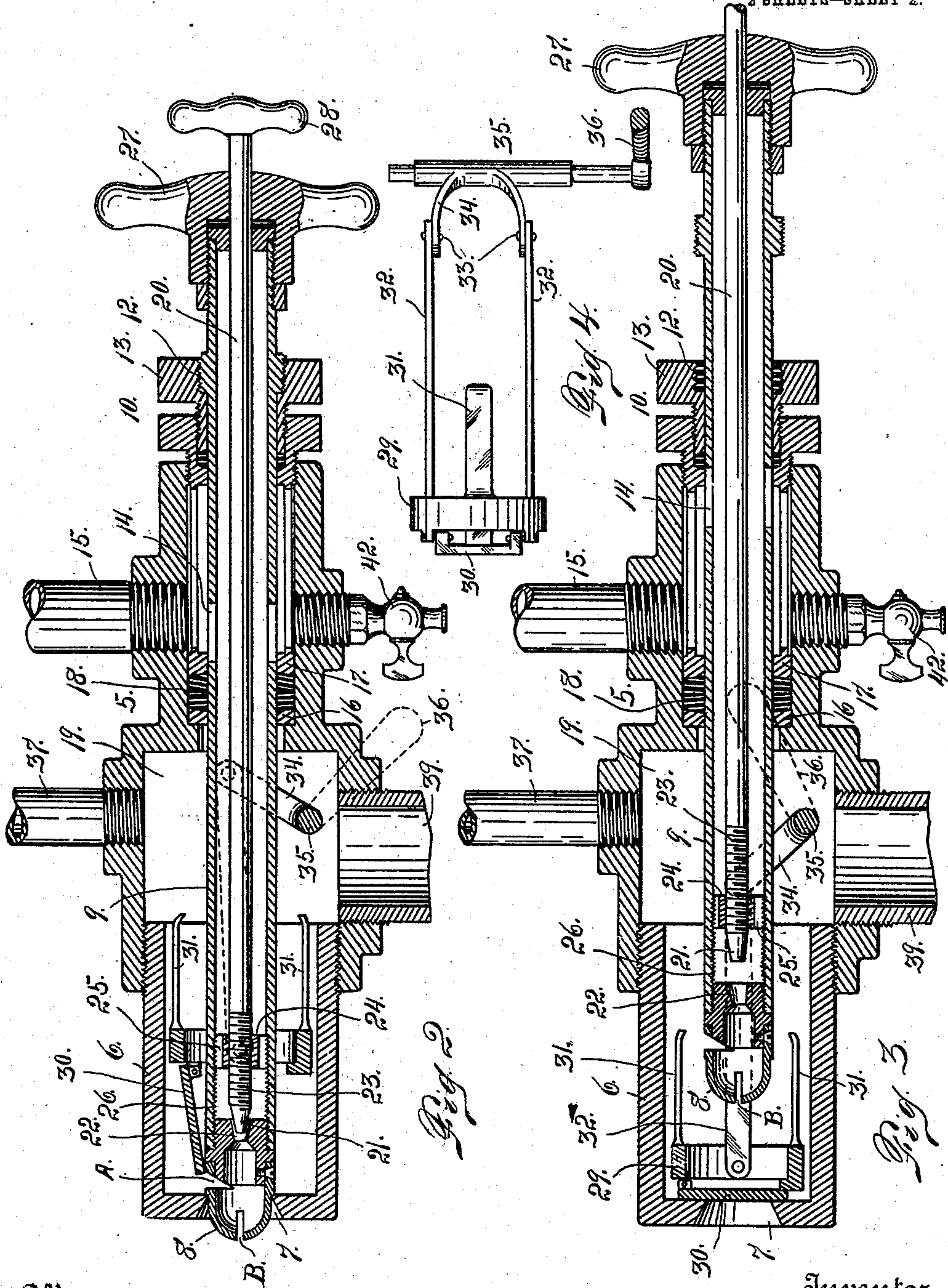
Inventor  
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By: *[Signature]* Attorney



# UNITED STATES PATENT OFFICE.

PHILIP K. MORCOM, OF DENVER, COLORADO.

## SELF-CLEANING OIL-BURNER.

No. 924,566.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed May 21, 1908. Serial No. 434,036.

*To all whom it may concern:*

Be it known that I, PHILIP K. MORCOM, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Self-Cleaning Oil-Burners; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in burners, more especially intended for the burning of crude oil. From the nature of this oil, the burner with which it is used must be cleaned at intervals.

An important object of my improvement, is to provide a burner which may be quickly and easily cleaned whenever it shall become necessary.

Generally speaking, the burner comprises a casing, a needle valve for controlling the passage of oil through the oil-tube to the burner tip, the said valve being adjustable within the tube, and a gate-valve slidable longitudinally in the casing and provided with a hinged member for closing the opening in the discharge extremity of the casing, after the oil-tube has been withdrawn for cleaning purposes.

My improved burner is also equipped with means for supplying oil to the burner tube, means for drawing the oil from said tube, and also means for the introduction of air or steam, both for use during the burning operation and also for use in cleansing the mechanism.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a side elevation of my improved burner. Fig. 2 is a central vertical section of the same. Fig. 3 is a similar section, the parts, however, being shown in different relative position. Fig. 4 is a top view in detail of the adjustable gate for closing the opening in the forward extremity of the burner casing.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a casing pro-

vided at its forward extremity with a removable cylindrical member 6, provided with an opening 7, adapted to receive the tip 8 of an oil-tube 9, disposed centrally and longitudinally of the casing. The rear extremity of the casing is closed by a stuffing box 10, through which passes the rear extremity of the oil-tube. This tube is exteriorly threaded, as shown at 12, and is screwed into a gland 13, which is correspondingly threaded for the purpose. The oil-tube is provided intermediate its extremities with one or more openings 14, through which the oil from the feed pipe or conduit 15, passes into the tube. Forward of the opening 14, the tube is surrounded by two rings 16 and 17, separated by a packing material 18, forming a fluid-tight joint, to prevent the passage of oil to the chamber 19 of the casing, since it is not desirable that the oil should enter this chamber. The rear extremity of the sleeve 17 is shaped to receive a wrench and is threaded in to the casing forming a part of the stuffing box 10. This part 17 is open intermediate its extremities for a considerable distance, whereby a communication is formed between the feed pipe 15 and the oil tube 9 by way of the opening 14, and also between the oil tube and the drain cock 42, when the oil tube is at either limit of its longitudinal adjustment.

Through the center of the oil-tube 9, passes a stem 20, whose forward extremity is cone-shaped, as shown at 21, to correspond with the shape of an opening 22, formed in the rear extremity of the tip of the oil-tube. This stem is provided with a threaded portion 23, which engages a threaded sleeve 24, located within the oil burner and provided with ribs 25, exteriorly threaded, whereby it is connected with the interiorly threaded portion 26 of the tube. The parts 20 and 21 constitute what I will term a needle valve. The stem 20 of this valve protrudes rearwardly from the rear extremity of the oil-tube, the latter being provided with a handle 27. The stem 20 passes through an opening formed in the said handle, and is provided at its rear extremity with a hand piece 28.

Located within the chamber of the forward member 6 of the casing, is a gate valve composed of a ring 29, of sufficient size to surround the oil-tube. To the upper side of this ring is hinged a gate or valve piece 30, which, when the device is in use for oil-burning purposes, is supported by the oil-tube in the position shown in Fig. 2. The ring 9 is



provided with upper and lower rearwardly extending arms 31. To the opposite sides of the ring are pivotally connected rearwardly extending links 32, whose rear ends  
 5 are pivotally connected, as shown at 33, with the arms 34 of a crank made fast to a rock shaft 35, journaled in the casing and passing transversely through the chamber 19 of the same. This rock shaft, or spindle, occupies  
 10 a position below the oil-tube, and one extremity protrudes from the casing, and is equipped with a hand crank 36, for the purpose of adjustment.

The casing is provided with a pipe or conduit 37, for the introduction of air or steam  
 15 into the casing chamber 19, this pipe being controlled by a valve 38. The casing is further provided with an outlet pipe 39 provided with a valve 40, which is open when it is desired to clean out the casing. The oil inlet  
 20 pipe 15 is provided with a valve 41. The casing is also provided with a drain cock 42 connected with its lower side, and in communication with the oil-tube. Its function  
 25 is the draining of the oil-tube preparatory to the cleaning operation.

From the foregoing description the use and operation of my improved oil-burner will be readily understood. When the device is in use for oil-burning purposes, the  
 30 parts are in the relative position shown in Fig. 2. In this event the drain cock 42 is closed, as is also the valve 40, in the outlet pipe 39. The valves 38 and 41, however, are  
 35 left open. The oil passes from the inlet pipe 15, into the oil-burner, and passes thence to its forward extremity entering the tip of the oil-tube through the opening 22, the needle-valve being adjusted to permit this result.  
 40 The air, or steam, as may be desired, enters the chamber 19, passes forwardly and enters the tip of the oil-tube through an opening A, with the result that a partial vacuum is produced forward of the opening 22, resulting in  
 45 causing the oil to pass forwardly through the oil-tube and out with the air through the slotted opening B formed in the tip of the tube. Now, when it is desired to clean the burner, the valve 41 is closed, thus cutting  
 50 off the supply of oil to the oil-tube. The valve 38 of the steam or air pipe, is also closed. The drain cock 42 is opened to allow any oil in the burner to drain out. The oil-tube 9 is then unscrewed from the gland 13, and pulled  
 55 rearwardly about two inches. When this is done, the gate valve should be moved forwardly in the casing by manipulating the operating handle 36, connected with the rock shaft or spindle 35, as heretofore explained.  
 60 As the gate valve is moved forwardly, the valve piece 30 will drop downwardly and close the opening 7 in the forward extremity of the casing. The needle valve is then unscrewed by giving it a few turns. The steam or air  
 65 pipe 37 is then opened by the proper adjust-

ment of the valve 38, in which event the air or steam under pressure entering the casing chamber, will pass into the oil-tube and remove all impurities from the burner, through  
 the drain cock 42. If it is desired to clean  
 70 out the casing independently of the oil-tube, the drain cock 42 may be closed and the valve 40 opened. In this event, the air will enter the casing chamber and drive all impurities out through the pipe 39. After  
 75 cleaning the burner, its elements should, of course, be restored to their normal positions for oil-burning purposes, after which the burner needs no attention as long as oil and  
 80 air are furnished.

Attention is called to the fact that instead of introducing compressed air through the pipe 37, volume air or air from a fan or blower, may be introduced through the pipe 39 in  
 85 order to perform the atomizer function in connection with the oil tube as heretofore explained.

Having thus described my invention what I claim is:

1. The combination with a casing having  
 90 an opening at its forward extremity, of an oil-tube longitudinally adjustable in the casing, and having a tip adapted to enter the forward opening in the casing, a valve for controlling the escape of the oil through the  
 95 said tip, a valve longitudinally adjustable in the casing and adapted to close the opening in the forward extremity of the latter when the oil-tube has been adjusted for the purpose, and a rock shaft passed transversely  
 100 through the casing and connected in operative relation with the last named valve, substantially as described.

2. An oil-burner comprising a casing, an  
 105 oil-tube centrally located therein and longitudinally adjustable, the casing being provided at its forward extremity with an opening, adapted to receive a tip with which the forward extremity of the oil-tube is provided, a valve longitudinally adjustable in  
 110 the casing, a rock shaft journaled in the casing, and a suitable connection between the said shaft and the valve whereby the latter may be moved back and forth within the casing, for the purpose set forth. 115

3. An oil-burner comprising a casing, an  
 oil-tube centrally located therein and provided with a tip adapted to pass through the opening formed in the forward extremity of  
 120 the casing, a needle-valve centrally disposed longitudinally within the oil-tube and longitudinally adjustable therein for regulating the passage of oil through the tube, and a gate valve longitudinally adjustable in the casing for closing its forward opening, and  
 125 a rock shaft journaled in the casing and connected in operative relation with the last named valve, substantially as described.

4. An oil-burner comprising a casing, an  
 oil-tube whose forward extremity is adapted 130



to enter an opening formed in the forward  
extremity of the casing, and a gate-valve  
comprising a ring through which the oil-tube  
is adapted to pass, a valve piece hinged to  
5 said ring, links pivotally connected with the  
ring, a rock shaft and a suitable operative  
connection between the links and the rock  
shaft for adjusting the valve as the shaft is  
manipulated, substantially as described.  
10 5. An oil burner having a casing provided  
with an opening in its forward extremity, a  
gate valve longitudinally adjustable in said

casing and adapted to close said opening,  
and a rock shaft passed transversely through  
the casing and connected in operative rela- 15  
tion with the said valve, substantially as de-  
scribed.

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

PHILIP K. MORCOM.

Witnesses:

DENA NELSON,  
ALODIA HUTCHISON.