Feb. 7, 1933. P. MEYER 1,896,782

PLUMBER'S TORCH

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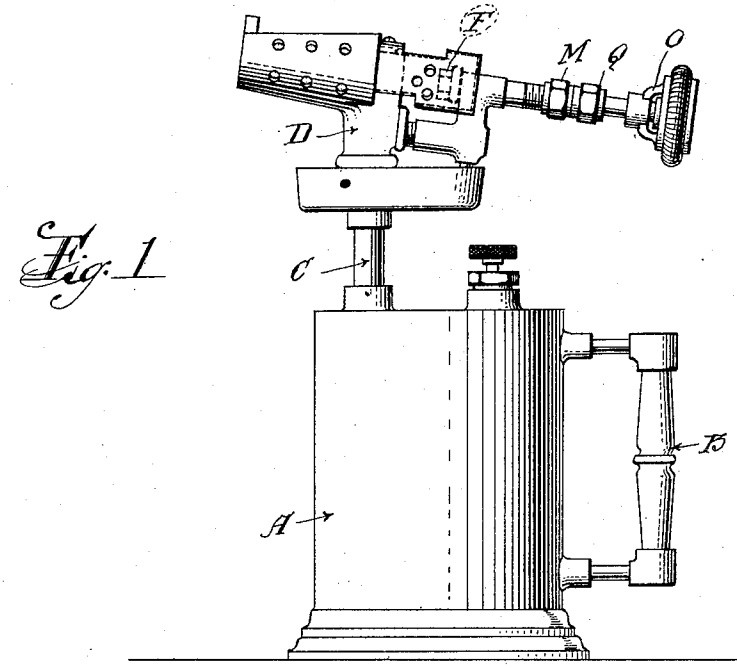


Fig. 1

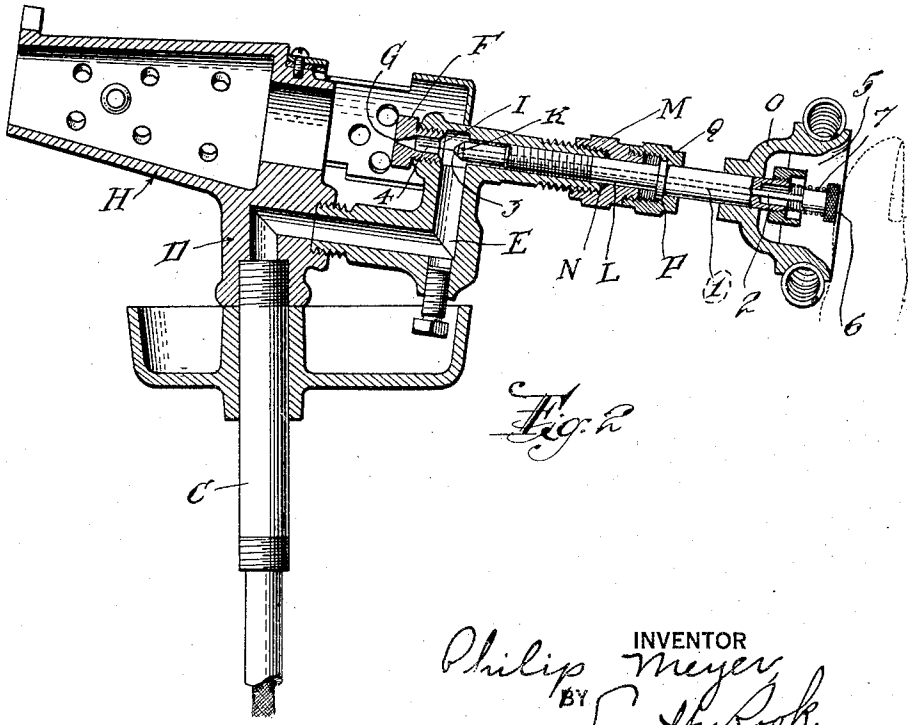


Fig. 2

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Fig. 3

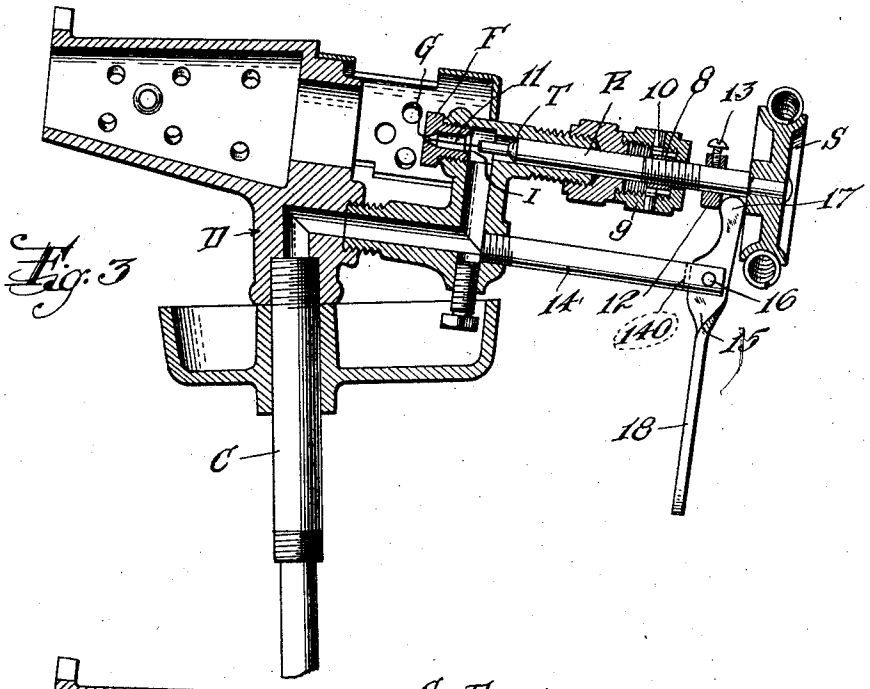


Fig. 4

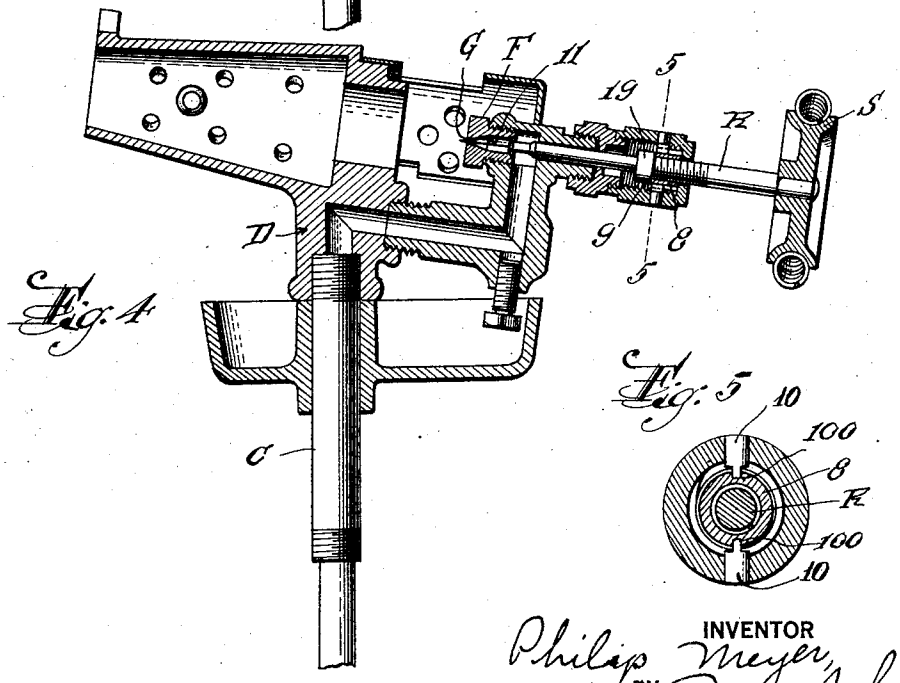


Fig. 5

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UNITED STATES PATENT OFFICE

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PLUMBER'S TORCH

Application filed December 31, 1930. Serial No. 505,675.

This invention relates in general to plumbers' torches and more particularly to means for cleaning the burner nozzle orifice of a plumber's torch.

One object of the invention is to provide a plumber's torch having a novel and improved means whereby the orifice of the burner nozzle can be easily and quickly cleaned while the torch is in operation or at any other time.

Other objects are to provide in plumbers' torches a novel and improved combination of fuel control valve and means for cleaning the orifice of the burner nozzle; to provide such a construction wherein the fuel control valve rod is screw-threaded for longitudinal movement substantially coaxially with the orifice of the burner block, and is either also longitudinally slidable or has a part which is longitudinally slidable and carries a wire to be pushed through the orifice of the burner block to remove foreign particles such as carbon or dust therefrom; to provide novel and improved means for longitudinally sliding the valve rod or a part carried thereby to actuate the cleaning wire into and out of the orifice; and to obtain other advantages and results as will be brought out by the following description.

Referring to the accompanying drawings, in which corresponding and like parts are designed throughout the several views by the same reference characters,

Figure 1 is a side elevation of a plumber's torch of known general construction and having embodied therein a burner nozzle cleaning device constructed in accordance with my invention.

Figure 2 is an enlarged vertical longitudinal sectional view through the burner head of the torch.

Figure 3 is a similar view of a modified form of the invention.

Figure 4 is a like view of still another modification of the invention, and

Figure 5 is a transverse vertical sectional view on the line 5—5 of Figure 4.

Specifically describing the illustrated embodiment of the invention, the torch in general comprises a fuel tank or reservoir A having a handle B at one side and a vertically projecting fuel pipe C at its top. Upon this fuel pipe is mounted a burner head D which has a passage E leading from the fuel pipe to a burner block F which is provided with a fuel outlet orifice G. The orifice of the burner block is approximately horizontally disposed, and in substantially coaxial relation thereto is a combustion tube H into which the fuel and flame from the burner block orifice is directed and combustion completed.

The inner end of the orifice block F has a valve seat I with which cooperates a head K on the end of a coaxial valve rod L which is screw-threaded at M in the burner head and projects outwardly through a gland N with its outer end provided with a hand wheel O for rotating the rod. It will be understood from this construction that rotation of the valve rod will cause movement of the valve head K into and out of engagement with the valve seat I to control the flow of fuel to the burner block F. Movement of the valve rod L away from the valve seat is limited by a collar P on the valve rod which engages the end of a cap Q mounted on the burner head. The foregoing construction is generally old and no claim to novelty thereon is made.

The valve rod L is preferably tubular, or has a longitudinal opening 1 therethrough in which is slidable a push rod 2 which has the inner end, i. e., the end inside the burner head, formed with a head 3 in which is mounted a cleaning wire 4 of a diameter to loosely fit the orifice G of the burner block. The outer end of the push-rod projects coaxially from the hand wheel O, and the hand wheel is preferably recessed at its outer side or formed with a concavity as indicated at 5, to form in effect a housing for the outer end of the push-rod and protect it against being struck by, or striking, external objects. The extremity of the push-rod has a finger-piece 6, and a compression spring 7 is interposed between said finger-piece and the end of the valve-rod L to normally influence the push-rod outwardly of the valve-rod. This outward movement is limited by the head 3 on the inner end of the push-rod.

In operation of the device, the valve-rod

may be located in any of its several positions between full closed and full open positions for controlling the flow of fuel through the burner orifice G, as desired. When it is desired to clean the orifice G, the operator may push inwardly upon the finger-piece 6 of the push-rod with his thumb as indicated by dotted lines in Figure 2 of the drawings. This causes the cleaning wire 4 to be pushed through the orifice G, and by reciprocating the push-rod several times, the orifice may be thoroughly cleaned. It will be understood that the cleaning wire 4 is removed from the orifice by the spring 7.

A modification of the invention is shown in Figure 3 of the drawings, where the valve-rod R is threaded in a cylindrical block 8 slidable within a cap 9 on the burner head. The block is held against rotation in the cap by pins 10 secured in the cap and engaging longitudinal grooves 100 in the block 8. The inner end of the valve-rod is provided with the cleaning wire 11, which in this case is directly connected to the valve-rod coaxially therewith. The outer end of the valve rod has a hand-wheel S, and in spaced relation to the hand-wheel S, a collar 12 is secured on the valve-rod as by a set screw 13. A bracket arm 14 is mounted on the burner head and an operating lever 15 is pivotally mounted intermediate its ends at 16 in a bifurcation 140 at the outer end of the bracket arm 14. One end 17 of the lever is disposed between the collar 12 and the inner side of the hand-wheel S, while the other end 18 serves as a handle.

The valve-rod has a valve-head T to cooperate with the valve-seat I at the inner end of the burner block.

In operation, the supply of fuel to the burner block is controlled by rotation of the hand-wheel S to move the valve head T toward and from the valve-seat I. The block 8 is held against rotation by the pin 10 in the slot 100. When the valve-rod R is rotated in one direction with the block engaging the end of the cap 9, the rod is moved longitudinally through the block, whereby the valve-head will be forced against the valve-seat I. Upon rotation of the valve-rod in the opposite direction, the valve-head will be moved away from the valve-seat. To clean the nozzle orifice G, it is merely necessary for the operator to reciprocate the valve-rod T by oscillating the operating lever 15, which causes the cleaning wire 11 to be reciprocated in the orifice opening G so as to clear it of all the foreign particles. Reciprocating movement of the valve-rod is limited by the block 8 in the cap 9, while valve opening movement of the valve rod is limited by the operating lever 15 when the latter swings so as to engage the base of the bifurcation 140 in the bracket arm 14 in which the lever is mounted.

A further modification of the invention is shown in Figure 4 of the drawings, where the construction is substantially identical with that shown in Figure 3, the only essential difference being that the operating lever 15 is omitted. Here the valve-rod R is reciprocated by pushing and pulling upon the hand-wheel S to cause the cleaning wire 11 to move into and out of the orifice G. Valve opening movement of the valve-rod is limited by a collar 19 on the valve-rod which engages the block 8 when the latter is in engagement with the outer end of the cap 9.

While I have shown and described several forms of my invention as embodying certain details of construction it should be understood that this is primarily for the purpose of illustrating the principles of the invention and that many modifications and changes may be made in the details of construction without departing from the spirit or scope of the invention.

Similarly, while I have shown the invention as embodied in a certain type of burner head, other uses of the cleaning device will readily occur to those skilled in the art; and therefore I do not desire to be limited in the construction and use of my invention except as required by the following claims when construed in the light of the prior art.

Having thus described my invention, what I claim is:

1. The combination with a burner head having a burner block formed with a fuel outlet orifice, and a fuel passage leading to said orifice, of a valve-seat in said passage coaxial with said orifice, a valve-rod having a screw-threaded connection in said burner head to move into and out of engagement with said valve seat upon rotation of the valve-rod in opposite directions to control said passage, a cleaning wire to enter said orifice and mounted on the inner end of said valve-rod, and means mounting said valve-rod in said burner head for reciprocation independently of said screw-threaded connection for moving said cleaning wire into and out of said orifice.

2. The combination with a burner head having a burner block formed with a fuel outlet orifice and a fuel passage leading to said orifice, of a valve-seat in said passage coaxial with said orifice, a valve-rod, a block threaded upon said valve rod and slidable on said burner head, means for limiting sliding of said block, means for holding said block against rotation, and a cleaning wire to enter said orifice and mounted on the inner end of said valve-rod, whereby said valve-rod may be moved into and out of engagement with said valve-seat by rotation of the valve-rod in opposite directions to control said passage, and said cleaning wire may be moved into and out of said orifice by reciprocation of said valve-rod through sliding of said block.

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