

Feb. 5, 1946.

P. WILSON

2,394,349

GAS TORCH

Filed Aug. 28, 1943

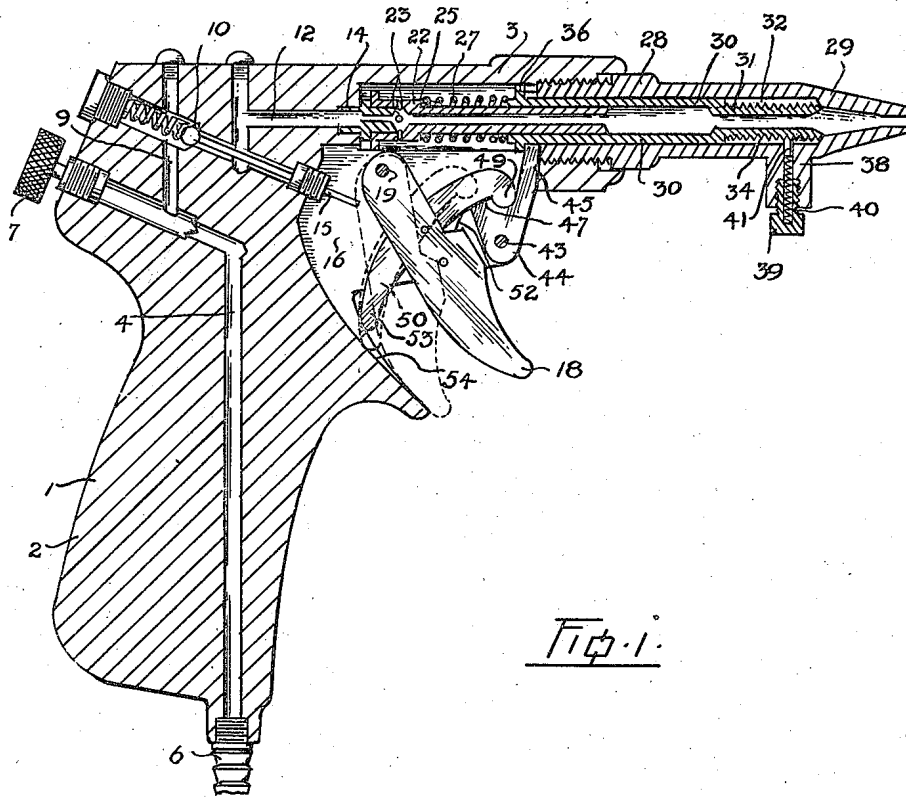


Fig. 1.

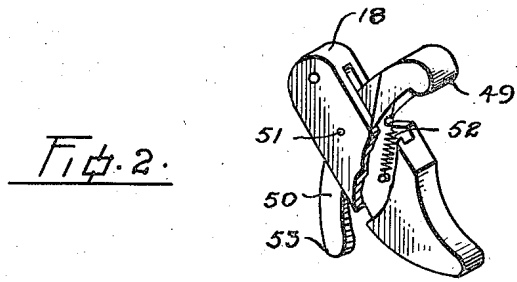


Fig. 2.

INVENTOR  
PETER WILSON  
*Ernest C. Carver*  
ATTORNEY.

# UNITED STATES PATENT OFFICE

2,394,349

## GAS TORCH

Peter Wilson, Vancouver, British Columbia,  
Canada.

Application August 28, 1943, Serial No. 500,367

7 Claims. (Cl. 67-20.1)

My invention relates to improvements in gas torches which are particularly adapted for use in torches using acetylene or other gas under pressure.

In torches equipped with igniters trouble has been manifested in obtaining such a spark as to ensure the gas passing through the torch igniting with each operation of the igniter, it being usually necessary for the igniter to be operated two or more times, which results in loss of gas and excessive wear of lighter flints etc. This defect is apparently due to the flint being left in the tubular passage through which the gas flows towards the jet of the torch. I have discovered that if the flint is only within the gas flow passage during ignition that the torch may be lit at any time without failure.

The objects of the invention are to provide means whereby a combustible mixture of gas and air is passed through a zone in which it may be instantly ignited by a so-called flint to light the torch and to cause the gas to by-pass said zone immediately following ignition. Further objects are to provide means for admitting gas to the zone immediately prior to the necessary frictional movement upon said flint.

The invention consists essentially of a torch having a main gas tube and an ignition zone adjacent the gas tube and means for providing communication between said tube and zone prior to ignition, as will be more fully described in the following specification and shown in the accompanying drawing, in which—

Fig. 1 is a sectional view of the torch.

Fig. 2 is a perspective view of the trigger and its pawl.

In the drawing like characters of reference indicate corresponding parts in each figure.

The numeral 1 indicates the body of the torch which is in the form of a pistol having a grip 2 and a barrel 3. The body is bored to provide a plurality of passages, viz. a supply passage 4 extending vertically through the grip 2 having a hose spigot 6 at its lower end for connection to a gas supply hose and communicating with a needle valve 7 by which the volume of gas to the tool is controlled. A passage 9 extends from the needle valve 7 to a spring closed valve 10 and a passage 12 leads from the valve 10 through a jet 14 disposed in the longitudinal axis of the barrel 3.

The valve 10 is provided with a stem 15 which extends into a trigger pocket 16 and lies in the path of a trigger 18, which is pivoted upon a pin 19. Surrounding the jet 14 within the barrel

3 is a Venturi tube 22 having a plurality of air inlet openings 23 which communicate with the space within the barrel, which barrel is open to the atmosphere through the trigger pocket 16. The Venturi tube 22 is provided with a shoulder 25 which forms an abutment for a spring 27. Secured within the front end of the barrel 3 is a barrel extension 28 having a nozzle 29 in alignment with the jet 14 and the Venturi tube 22. Slidably mounted within the bore of the barrel extension 28 and upon the outer periphery of the Venturi tube 22 is a sleeve 30 having at its outer end a reduced portion 31 which when extended or in normal position defines an ignition chamber 32 which is substantially closed off from the interior of the sleeve, by the end of the portion 31 substantially seating at the inner end of the nozzle 29. The reduced portion 31 is threaded to form a file 34. The sleeve 30 is provided with an external flange 36 adjacent its inner end and the extremity of said sleeve abuts the spring 27 which urges the sleeve forwardly towards its normal position as shown.

A flint housing 38 is formed on the underside of the barrel extension 28 in which is mounted a recessed nut 39 having a coil spring 40 for urging a flint 41 into abrading contact with the file 34.

Mounted upon a pin 43 is a V-shaped rocker 44 having a finger 45 which engages the flange 36 to retract the sleeve 30 against the spring 27. The rocker is also provided with a latch 47 which is normally engaged by a hook 49 of a pawl 50. The pawl 50 is pivotally mounted in the trigger 18 upon a pin 51 and is urged towards engaging position with the rocker latch 47 by a spring 52, see Figure 2. The rear end 53 of the pawl 50 is adapted to engage a cam 54 which forms the rear surface of the trigger pocket 16, as the trigger approaches its rearmost position, as indicated in dotted line in Figure 1 to raise the hook 49 of the pawl and release the latch 47 of the rocker 44.

In operation, the torch having been connected to a suitable source of gas supply is held in the hand ready for use. Pulling the trigger 18 the hook 49 of the pawl 50 which is in engagement with the latch 47 of the rocker 44 causes said rocker to swing in an anti-clockwise direction and retract the sleeve 30, withdrawing the extremity of its reduced portion 31 from the inner end of the nozzle so that the ignition chamber 32 becomes momentarily a cylindrical space between the outer end of the portion 31 and the nozzle. As the trigger moves rearwardly it strikes the stem

15 of the valve 10 and allows gas to flow through the jet 14, the Venturi tube 22 where a suitable amount of air is induced into the stream through the openings 23 and through the sleeve 30 to the enlarged space of the ignition space. The ultimate rearward movement of the trigger causes the end 53 of the pawl 50 to engage the cam 54 and rock the pawl so that its hook is raised out of the latch 47 of the rocker, this releases the rocker and the spring 27 forces the sleeve 30 forwardly thus causing the file 34 to abrade the flint and cause the spark necessary to ignite the gas in the chamber. The force of gas and air following the volume ignited causes the flame to pass out through the nozzle 29 where it will continue to burn. The closing off of the ignition chamber prevents unburned gas and air from again entering the ignition chamber while the torch remains in use and while the trigger is held in its rearward position as shown in dotted line in Figure 1. On releasing the trigger, the valve 10 closes, shutting off the gas flow and the hook 49 of the pawl 50 slides over the latch 47 of the rocker 44 to engage it ready to retract the sleeve 30 when it is again necessary to ignite the torch.

What I claim as my invention is:

1. A torch comprising a body having a jet and a nozzle, an ignition chamber between the jet and the nozzle, an abrasive igniter within the ignition chamber, means concentric with the jet and the nozzle normally closing off the ignition chamber from the jet and the nozzle, means to open the closure, and means for actuating the igniter.

2. A torch comprising a body having a jet and a nozzle, an ignition chamber between the jet and the nozzle, an abrasive igniter within the ignition chamber, means concentric with the jet and the nozzle normally closing off the ignition chamber from the jet and the nozzle, means to open the closure and means for actuating the igniter when the closure is being returned to normal position.

3. A torch comprising a body having a jet, a barrel extension and a nozzle and a normally closed valve controlling the gas supply to the jet, a retractile sleeve forming a passage between the jet and the barrel extension, a spring for holding the sleeve in normal position, an ignition chamber surrounding the sleeve and normally separated therefrom, an igniter within the ignition chamber and a trigger carried by the body for retracting the sleeve to form a means of communication between the jet and the ignition chamber for opening the valve to admit gas to the chamber and for actuating the igniter.

4. A torch comprising a body having a gas passage, a jet and a nozzle in communication with said jet, an ignition chamber adapted to be brought into communication with the nozzle, means concentric with the jet and the nozzle for closing off the ignition chamber from the nozzle, an igniter within the ignition chamber, means for actuating the igniter, and means for establishing communication between the ignition chamber and the nozzle.

5. A torch comprising a body having a jet, a barrel extension and a nozzle and a normally closed valve controlling the gas supply to the jet, a retractile sleeve forming a passage between the jet and the nozzle, a spring for holding the sleeve in normal position, an ignition chamber surrounding the sleeve and normally separated from said passage, an igniter within the ignition chamber and a trigger carried by the body for retracting the sleeve to form a means of communication between the jet and the ignition chamber for opening the valve to admit gas to the chamber and for actuating the igniter, and means for releasing the sleeve to close off the ignition chamber from the passage between the jet and the flame tube.

6. In a torch having a jet, a tubular member spaced therefrom, a normally closed valve controlling the gas supply to the jet, a trigger for opening the valve, a spring pressed sleeve slidable between the jet and the tubular member, a rocker engaging the sleeve, said rocker having a latch, a pawl pivotally mounted intermediate its ends upon the trigger, one of said ends being adapted to engage the latch to retract the sleeve and the other of said ends being adapted to engage a surface of the torch when the trigger is manually actuated to disengage the pawl from the rocker.

7. A torch comprising a body and barrel having a barrel extension terminating in a nozzle, said body having a gas inlet, a spring closed valve, a jet and a trigger for opening the valve to admit gas to the jet, a Venturi tube surrounding the jet, a retractile sleeve slidably movable upon the Venturi tube and within the barrel extension, said sleeve defining an ignition chamber within the barrel extension when in extended position and forming a communication between the interior of the Venturi tube and the ignition chamber when retracted, means for sliding the sleeve, and means for igniting the gas flowing into the ignition chamber in response to manual movement of the trigger.

PETER WILSON.