E. H. SMITH.

ACETYLENE TORCH G

APPLICATION FILED JAN. 21, 1918.

1,318,813.

Patented Oct. 14, 1919.

2 SHEETS—SHEET 1.

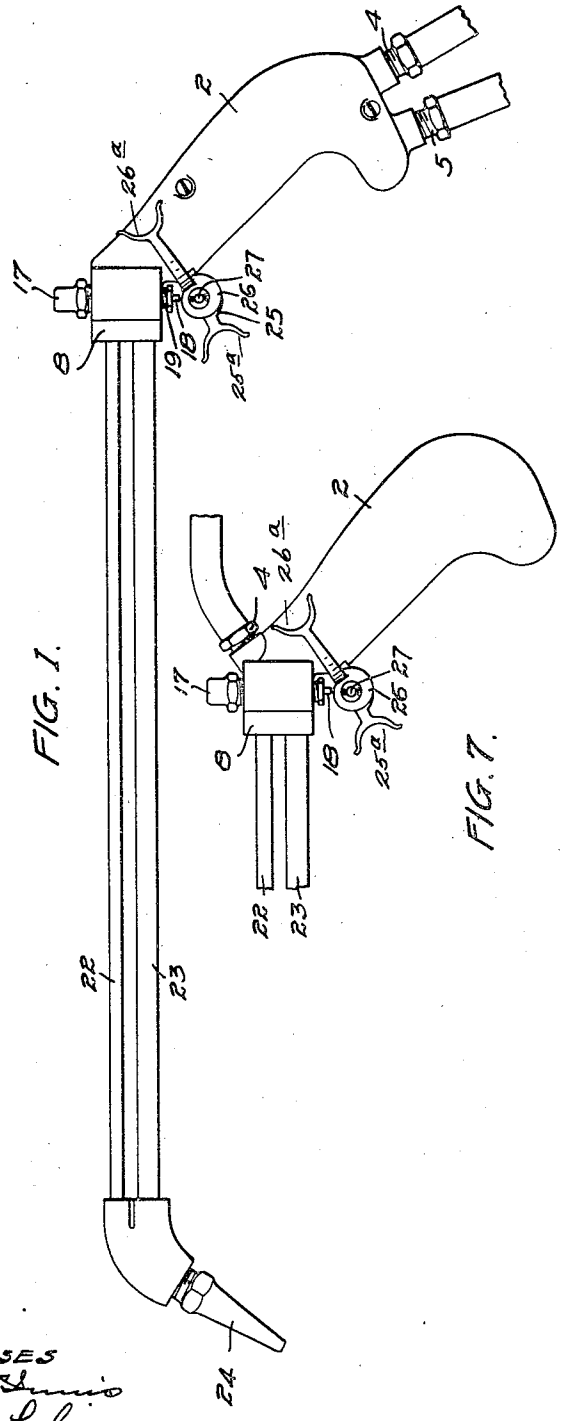


FIG. 1.

FIG. 7.

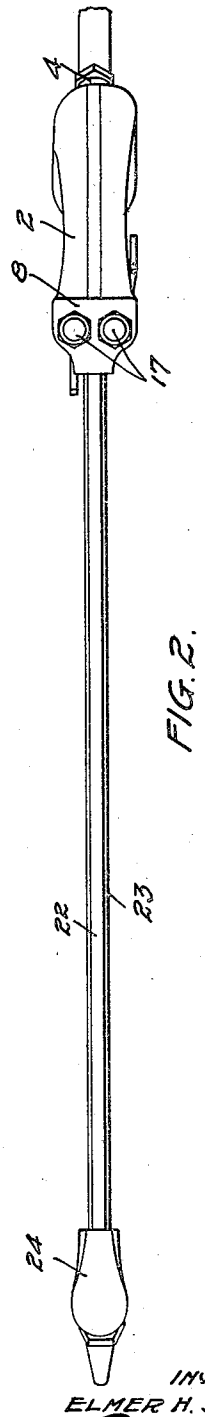


FIG. 2.

WITNESSES

M. R. McInnis

M. R. DeLeghe

INVENTOR

ELMER H. SMITH

BY Parker & Parker

ATTORNEYS

E. H. SMITH.

ACETYLENE TORCH GRIP.

APPLICATION FILED JAN. 21, 1918.

1,318,813.

Patented Oct. 14, 1919.

2 SHEETS—SHEET 2.

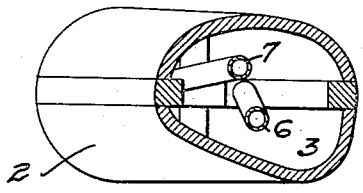


FIG. 6.

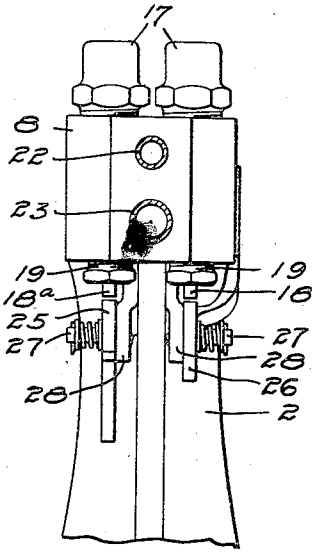
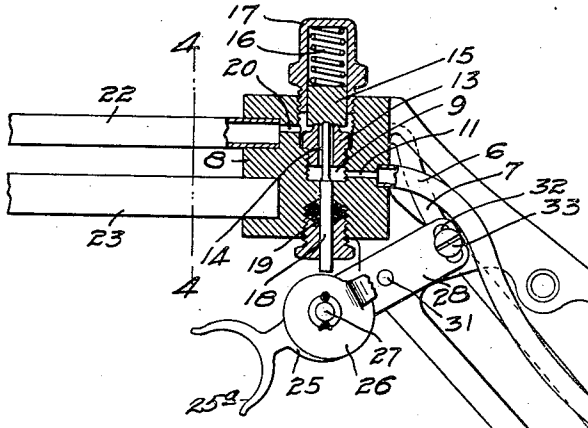


FIG. 4.



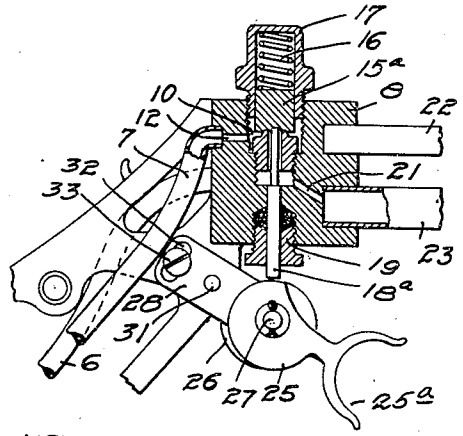


FIG. 5.

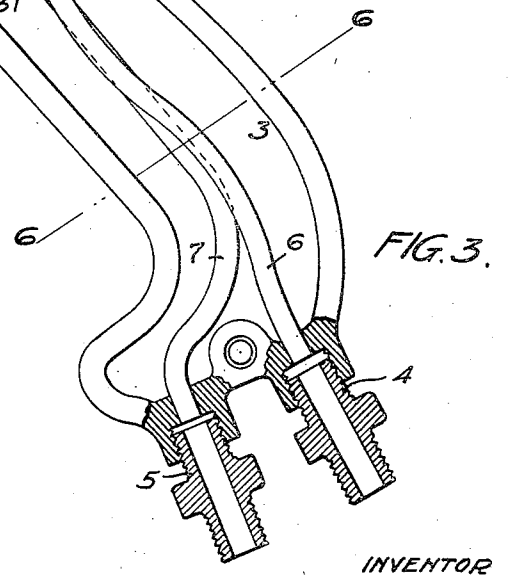


FIG. 3.

WITNESSES

M. P. McInnis.

M. P. DeLeglise

INVENTOR

ELMER H. SMITH

BY Paul Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

ELMER H. SMITH, OF MINNEAPOLIS, MINNESOTA.

ACETYLENE-TORCH GRIP.

1,318,813. Specification of Letters Patent. Patented Oct. 14, 1919.

Application filed January 21, 1918. Serial No. 213,043.

To all whom it may concern:

Be it known that I, ELMER H. SMITH, a citizen of the United States, resident of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Acetylene-Torch Grips, of which the following is a specification.

In the use of an ordinary oxy-acetylene torch, it has been customary for the operator to turn the hand downwardly by bending the wrist for the purpose of holding the torch in the proper position for welding. This has been found to be an awkward, uncomfortable position for the wrist and the object of my present invention is to provide a grip which will enable the user of the torch to hold it at the desired angle or position without the necessity of bending or turning the wrist.

A further object is to provide a system of valve control which will enable the operator of the torch to control the valves for regulating the flame with one hand while the other hand may be used for holding the metal or for any other purpose.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a side elevation of an acetylene torch embodying my invention,

Fig. 2 is a top view of the same,

Fig. 3 is a detail sectional view through the grip of the torch,

Fig. 4 is a sectional view on the line 4—4 of Fig. 3,

Fig. 5 is a detail sectional view, showing the opposite side of the head of the torch from that of the section line of Fig. 3,

Fig. 6 is a sectional view on the line 6—6 of Fig. 3,

Fig. 7 is a side view of a modified form of handle.

In the drawing, 2 represents the grip of the torch, preferably in the form of a pistol grip and composed of longitudinally divided sections having a chamber 3 therein, said sections being suitably faced and secured together by bolts or rivets. In the end of the grip are nipples 4 and 5 having means for connection with acetylene gas and oxygen tanks and tubes 6 and 7 lead respectively from these nipples through the grip chamber 3 to the valve casing 8 of the torch that is mounted on one end of the grip. This valve casing is provided with chambers 9 and 10 formed therein communicating respectively through ducts 11 and 12 with the tubes 6 and 7. In these chambers blocks 13 are arranged, having passages 14 therethrough which are normally closed by valves 15 and 15ª, which are held with a yielding pressure over the outlets of said passages in the plugs 13 by the tension of compression springs 16 arranged within caps 17 mounted on the valve casing 8. These valves 15 and 15ª normally close the flow of oxygen and acetylene gas from the tubes 6 and 7. To open these valves and admit oxygen and gas through the valve casing I provide pins 18 and 18ª mounted to slide in stuffing boxes 19 in said valve chambers and fitting loosely in the passages 13 and having upper ends for contact with the valves 15 and 15ª while their lower ends depend outside the lower portion of the valve casing 8. Ducts 20 and 21 lead from the valves 15 and 15ª to the pipes 22 and 23 through which the oxygen and the acetylene gas are conducted to the tip 24 of the torch in the usual way. It is important to provide some means for regulating the valves 15 and 15ª so that the operator can have complete control of the delivery of oxygen and gas to the nozzle and with this end in view I provide cams 25 and 26 mounted on studs 27 which are supported by plates 28 having pivot pins 31 and provided with slots 32 to receive screws 33 which are tapped into the grip and may be adjusted to allow oscillation of the plates on the pins 31 for the purpose of changing the relative position of the cams and the pins 18 and 18ª.

In using the torch, the operator will grasp the handle in much the same way as though it were a pistol grip and the U-shaped finger grip 26ª of the cam 26 will be in position to be operated by the thumb and a finger of the right hand, while the grip 25ª of the cam 25 may be reached conveniently by the other fingers of the same hand and the cams may thereby be operated simultaneously or independently and a perfect control obtained over the delivery of oxygen and gas to the nozzle while the other hand of the operator is free to hold the metal or per-

form any other duty incidental to the welding or other operation for which the torch is used. The pistol or angular grip will allow the operator to hold the torch without bending the wrist and he is therefore able to continue the use of the torch steadily without any inconvenience or discomfort, while at the same time maintaining a perfect control over the oxygen and acetylene feed valve.

In Fig. 7 I have shown a modified construction which consists in mounting the supply nipples on the grip above the hand instead of below it, in other respects the attachment being substantially the same as shown in the detail views. I have shown the grip substantially in the form generally used on a pistol, but any other angular arrangement of the grip with respect to the valve chamber may be adopted, the essential feature being to provide a grip and valve chamber in such relative position that it will not be necessary to bend or crook the wrist in using the torch, a further improved feature resulting from this angular arrangement of the grip being the convenient operation of the controlling valves with the fingers and thumb of the one hand which supports the torch.

I claim as my invention:

1. An acetylene torch comprising a hand grip, a valve casing mounted thereon and oxygen and acetylene pipes leading therefrom, a head mounted on said pipes and a nozzle carried by said head and communicating with said pipes, valves mounted in said casing, said grip being in angular relation to said casing and pipes and recessed in its underside near the lower end to form a pistol grip and provided with ducts extending therethrough communicating respectively with said pipes through said valves, and tubes leading from a source of acetylene gas and oxygen supply and mounted on said grip for communication with said ducts.

2. An acetylene torch comprising a hand grip, a valve casing mounted thereon and oxygen and acetylene pipes leading therefrom, a head mounted on said pipes and a nozzle carried by said head and communicating with said pipes, valves mounted in said casing, said grip being in angular relation to said casing and pipes and recessed in its underside near the lower end to form a pistol grip and provided with ducts extending therethrough communicating respectively with said pipes through said valves, and tubes leading from a source of acetylene gas and oxygen supply and mounted on said grip for communication with said ducts, and means positioned to be operated by the hand grasping the grip for opening said valves.

3. An oxy-acetylene torch comprising a grip, a valve casing connected therewith and acetylene gas and oxygen pipes communicating with said valve casing, valves mounted in said casing for controlling the delivery of acetylene and oxygen to said pipes, said grip being angularly disposed with respect to said casing and having a convex upper surface near its lower end and a recessed under surface forming a pistol grip, said grip having ducts communicating through said casing and valves with said pipes and tubes for supplying acetylene gas and oxygen to said ducts.

4. An oxy-acetylene torch comprising a grip, a valve casing connected therewith, acetylene and oxygen pipes leading from said casing, a tip connected with said pipes, valves mounted in said casing for controlling the flow of acetylene gas and oxygen therethrough to said pipes, means for supplying gas and oxygen to said casing, levers mounted adjacent the junction of said casing and grip and having means for engagement by the finger and thumb of the hand grasping the grip, and means actuated by said levers for operating said valves.

5. An oxy-acetylene torch comprising a pistol grip, oxygen and acetylene gas valves mounted therein, and valve controls concentrically mounted to be operated by the hand grasping the grip.

6. An oxy-acetylene torch comprising a pistol grip, a valve casing thereon, oxygen and acetylene gas valves mounted in said casing, and valve controls concentrically mounted to be operated by the hand grasping the grip.

7. An oxy-acetylene torch comprising a grip, a valve casing thereon, oxygen and gas ducts formed in said valve casing, valves for said ducts, pins for operating said valves, and cams mounted to be controlled by the hand grasping the grip for operating said pins.

8. An oxy-acetylene torch comprising a grip, a valve casing therefor having oxygen and acetylene gas ducts therein, valves for said ducts, concentrically mounted cams for operating said valves independently, said cams having finger grips and mounted to be operated by the hand grasping the grip.

9. An acetylene torch comprising a grip, a valve casing therefor having oxygen and acetylene gas ducts therein and valves for said ducts, cams for operating said valves and provided with finger grips to be actuated by the hand grasping the grip, said cams being mounted for adjustment on said grip for changing their position with respect to said valves and varying the period of operation of said valves.

10. An acetylene torch comprising a hand grip, a valve casing mounted on one end thereof and having valve chambers therein and oxygen and acetylene supply pipes leading therefrom, a head mounted on said

pipes and a nozzle carried by said head and communicating with said pipes, valves mounted in said casing and positioned to normally close the passage leading to said pipes, reciprocating pins mounted in said casing to engage and open said valves and cams having finger grips mounted to engage and actuate said pins and valves and means for supplying acetylene gas and oxygen to the chambers in said valve casing.

11. An oxy-acetylene torch comprising a grip, a valve casing mounted thereon having oxy-acetylene gas ducts therein and valves for said ducts, plates mounted on said grip for vertical oscillation, cams carried by said plates, pins mounted in said casing and actuated by said cams for operating said valves said plates oscillating on said grip and said cams being mounted for varying their position with respect to said pins and the time of operation of said valves and finger grips for operating said cams, pipes communicating with said valves, and a head mounted on said pipes and a torch tip carried by said head.

12. An oxy-acetylene torch comprising a grip, a valve casing mounted thereon and having valve chambers therein, pipes mounted at one end in said casing and communicating with said chambers, valves mounted in said casing for shutting off the flow of gas and oxygen to said pipes or admitting it thereto, means for supplying oxygen and acetylene gas to the chambers in said casing, means operating through the wall of said casing for actuating said valves, cams mounted upon each side of said hand grip in position to engage said valve operating means, springs for said cams, and means for rotating said cams under pressure of the thumb and finger for actuating said valves.

13. An oxy-acetylene torch comprising a grip, a valve casing mounted thereon, acetylene gas and oxygen pipes leading from said casing, a tip connected with said pipes, valves mounted in said casing for controlling the flow of acetylene gas and oxygen therethrough, cams mounted beneath said casing and adjacent thereto, and levers having finger grips also beneath said casing for rotating said cams to operate said valves.

14. An oxy-acetylene torch comprising a grip, a valve casing connected therewith, acetylene gas and oxygen pipes leading from said casing, a tip connected with said pipes, valves mounted in said casing for controlling the flow of acetylene gas and oxygen therethrough, levers mounted adjacent the inner end of said grip for operating said valves, one of said levers depending in position to be grasped by the finger of the hand on the grip and the other lever projecting in position to be engaged by the thumb of the hand on the grip.

In witness whereof, I have hereunto set my hand this 4th day of January 1918.

ELMER H. SMITH.