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ACETYLENE TORCH

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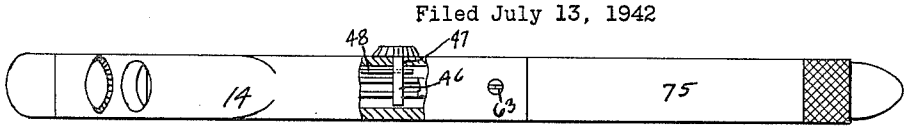


FIG. 2

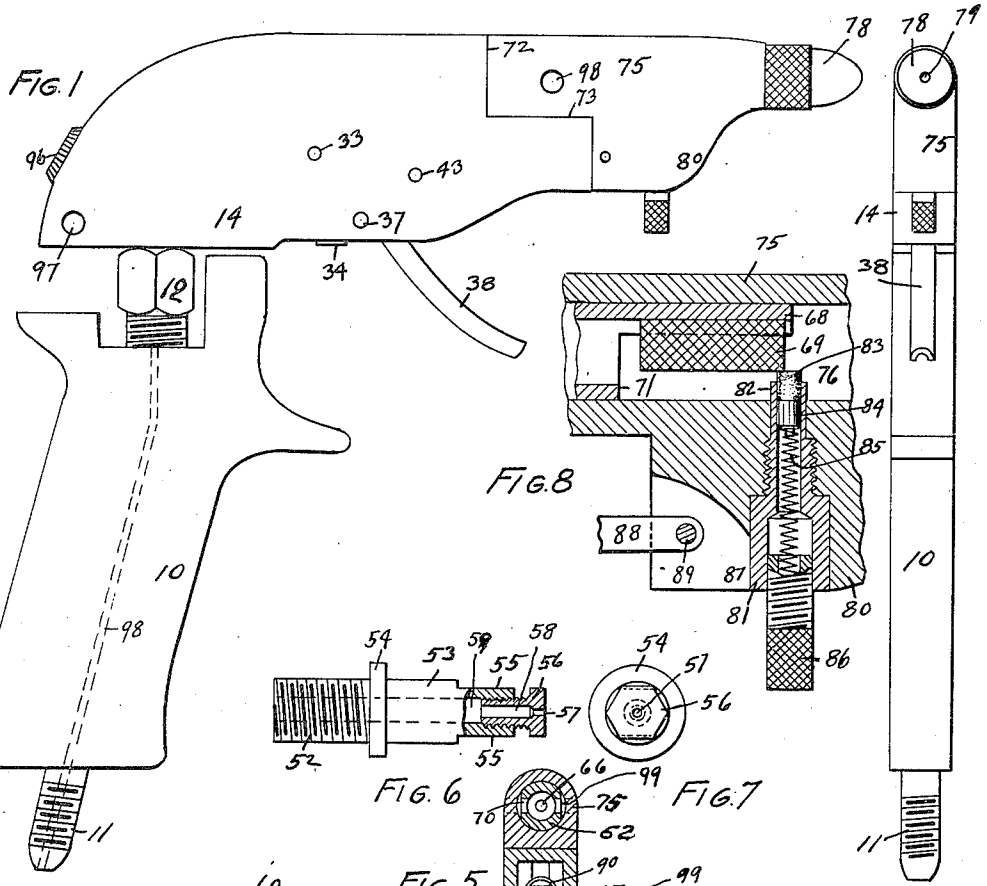


FIG. 1

FIG. 8

FIG. 6 FIG. 7

FIG. 5

FIG. 3

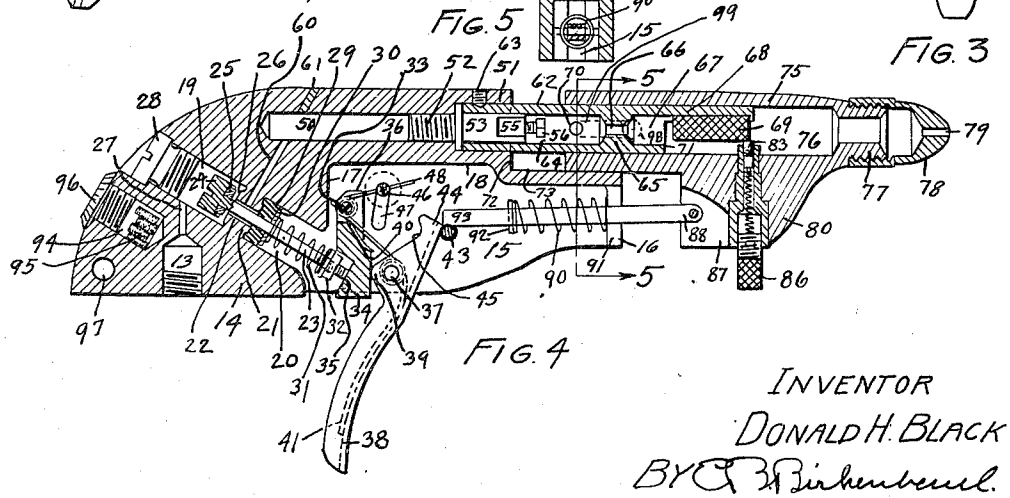


FIG. 4

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ACETYLENE TORCH

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2 Claims. (Cl. 67—20.1)

This invention relates generally to gas burning equipment and particularly to an acetylene torch.

The main object of this invention is to construct a torch of the class described which is convenient to handle, simple to manufacture, and keep in repair, and which has an improved form of gas mixing and air induction jet.

The second object is to construct the parts in a manner to adapt same to employment of die casting methods of manufacture.

The third object is to construct the parts in a manner to insure an absolute seal along the gas line without any opportunity for leaks to occur at undesirable places.

These and other objects are accomplished in the manner set forth in the following specification as illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of the torch.

Fig. 2 is a plan of the torch.

Fig. 3 is an end elevation of the torch.

Fig. 4 is a longitudinal section through a portion of the torch with the handle and gas connection omitted.

Fig. 5 is a transverse section taken along the line 5—5 in Fig. 4.

Fig. 6 is an enlarged section through the gas tip.

Fig. 7 is an end elevation of Fig. 6.

Fig. 8 is a fragmentary section through the striker or igniter flint and related parts.

Similar numbers refer to similar parts throughout the several views.

The handle 10 of the device is fashioned somewhat after the form of a revolver handle except that it is provided at its butt end with a nipple 11 for a hose (not shown) providing a connection to a source of gas supply (not shown). The usual regulating apparatus will, of course, be employed.

The handle 10 is provided with a union 12 by means of which is connected the tapped opening 13 in the body 14 of the torch. The body 14 is almost perpendicular to the handle 10 and is provided with a longitudinal slot 15 which extends from the end 16 to the face 17 and is bounded on its upper side by the offset line 18.

The body 14 has formed therein the holes 19 and 20 which are in axial alinement in opposite sides of the dividing wall 21, through whose opening 22 extends the valve stem 23 provided with a slotted head 24 on the under side of which is disposed the composition valve washer 25 which is adapted to engage the ground seat 26.

The hole 19 is connected to the hole 13 by means of the small hole 27. The outer end of the hole 19 is plugged by means of the screw 28.

Around the stem 23 is placed a packing washer 29 through which the stem 23 can freely slide. Directly against the washer 29 is placed a metallic washer 30 against which bears the spring 31 which is held in compression by the nut 32. The spring 31 normally urges the washer 25 against the seat 26.

Extending across the slot 15 is a pin 33 from which hangs the lever 34 whose inclined side 35 bears against the threaded end of the valve stem 23.

The upper end 36 of the lever 34 is slotted to provide a space for spring elements which will be explained later.

Mounted across the slot 15 is a trigger pin 37 upon which is mounted the trigger 38 having an eccentric projection 39 which engages the side 40 of the lever 34. The trigger 38 is U shaped in cross section and is provided with a trigger spring 41 whose end 42 rides against the pin 33 while the coil of the spring 41 is wound around the trigger pin 37.

There is also provided a trigger stop pin 43 adapted to engage the trigger point 44 when the trigger 38 is in its extreme "pulled" position, in which the eccentric point 39 bears against the lever 34 and unseats the valve washer 25.

The trigger 38 is provided with a notch 45 near its point 44 which notch is adapted to engage the transverse pin 46 which is slidably mounted in the slot 47. When the pin 46 is urged to the lower end of the slot against the action of the spring 48, by manual pressure against the head 49, it tends to keep the trigger pulled sufficiently to allow gas to flow past the washer 25.

Within the upper part of the body 14 is formed the opening 50 provided with the counter bore 51. Threaded into the opening 50 is the stem 52 of the gas tube 53 whose intermediate flange 54 equals in diameter the counter bore 51. The outer end of the hole 50 is threaded to receive the stem 52. The tube 53 is provided with flattened sides 55 to facilitate turning. The tube 53 is also provided with a thread to receive the gas tip 56 whose small opening 57 communicates with the large opening 58 which in turn communicates with a still larger opening 59 through which gas can flow from the opening 50.

The opening 50 is connected with the opening 22 by means of a channel 60 which is preferably drilled through the wall 21 and has a plug 61 in its outermost end.

Extending into the counter bore 51 is a gas

mixing tube 62 which surrounds the body of the gas tube 53 and engages the flange 54 thereof. The tube 62 is held in place by the set screw 63.

The tube 62 has a mixing chamber opening 64 which extends from the flange 54 to the wall 65, said wall having a small opening 66 through which the gas passes into the opening 67. The tube end 68 is partially cut away and has affixed thereto a striker 69 which may be of any suitable material, such as a section of a file. The tube 62 is provided with an air inlet opening 70 which communicates with the mixing chamber opening 64.

It will be noted that the striker 69 projects beyond the face 71 of the tube 62. It will also be noted that the body 14 is offset to the face 72 to form a table 73 above which the tube 62 extends.

Mounted on the table 73 is the base 74 of the slidable torch end 75 which is provided with an opening 76 into which the striker end of the tube 62 extends. The portion 77 of the torch end 75 is threaded to receive the torch tip 78 having an opening 79 from which gas emerges to the flame.

The torch end 75 is provided with an enlarged under side 80 into which extends a bushing 81 whose tip 82 extends somewhat into the opening 76 to support a flint 83 which is urged outwardly by the plunger 84 which is attached to the spring 85 whose tension is adjusted by means of the knurled screw 86. The purpose of the plunger 84 is to prevent the spring 85 from becoming fouled with the striker 69 when the flint 83 is worn out.

The portion 80 of the torch end 75 is provided with a slot 87 to receive the square plunger 88 to which it is attached by means of the pin 89. The plunger 88 is provided with a spring 90, one end of which bears against the ribs 91 of the end 16, while the other end of the spring 90 bears against the pin 92.

The end 93 of the plunger 88 normally rests upon the stop pin 43.

In the body 14 there is provided a threaded cavity 94 to provide a storage space for extra flints 95. A threaded plug 96 confines the flints therein.

It is also desirable to provide the hole 97 in the body 14 to receive a ring (not shown) for attaching the torch to the belt of the user or for holding the body 14 in a jig or fixture for manufacturing purposes.

The operation of the device is as follows:

Assuming that there is a regulated supply of gas available at the nipple 11, it will be seen that same will flow up through the opening 98 in the handle 10 through the union 12 into the opening 19 where it helps to maintain the valve washer 25 in a closed or seated position, it being normally held there by the action of the spring 31.

The trigger 38 is now in the position shown in Fig. 1. If now the operator moves the trigger to the position shown in Fig. 4, he causes the trigger end 44 to engage the plunger end 93 and to compress the spring 90, forcing the torch end 75 to the position shown in Fig. 4. Here it will be noted that the end 93 is in a position to spring past the end 44 and return to its former position very quickly under the action of the spring 90, and this quick action causes the flint 83 to be moved along the face of the striker element 69 and produce a spark which ignites the gaseous mixture now flowing into the opening 76 by reason of the fact that the trigger 38 has unseated the washer 25, permitting gas to flow from the opening 19 through the opening 60 into the opening 50, from whence it passes through the opening 57 into the mixing compartment opening 64, where it draws in air through the air inlet opening 70, which communicates with the openings 98 in the member 75 along the flattened surfaces 99.

Since the member 75 has now moved back to the position shown in Fig. 1, it follows that there is a direct connection between the holes 98 and 70, and that sufficient air can be drawn in by the passing gas to maintain the proper combustion on the outer end of the tip 78.

It follows that as long as the trigger 38 is pressed, gas will flow and combustion be maintained. If it is desired to maintain the flame without the necessity of pressing the trigger, this can be accomplished by merely pressing the head 49 downwardly and holding it there while releasing the trigger, thereby causing the pin 46 to engage the notch 45. Obviously, to stop the operation of the torch, it is only necessary to press the trigger 38 slightly and this will release the pin 46.

I claim:

1. A torch of the class described consisting of a body member having a counter bored opening formed longitudinally therein, a gas tube projecting from said opening and sealed to said body member, a gas mixing tube mounted on said gas tube extending into said counter bored opening, said gas mixing tube having a Venturi opening therein, and a torch end slidably mounted on said gas mixing tube provided with a torch tip and igniting mechanism in the form of a flint and striker, the former being held by said torch end, and the latter by said gas tube.

2. The torch as described in claim 1 characterized by having a gas control valve for admitting gas to said gas mixing tube, and having a manually operated trigger for opening said valve and actuating said flint, and means for optionally holding said manually operated trigger in an open valve position after the striking operation is performed.

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