C. G. FILZER.

TORCH.

APPLICATION FILED MAR. 17, 1914.

1,135,368.

Patented Apr. 13, 1915.

2 SHEETS—SHEET 1.

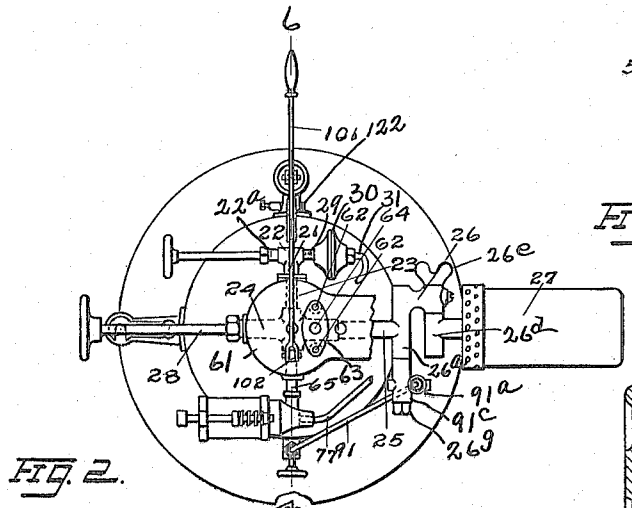


FIG. 2.

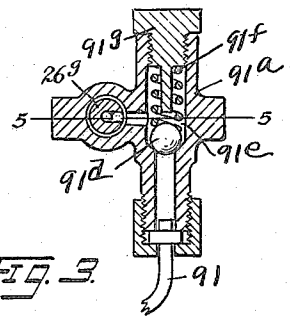


FIG. 3.

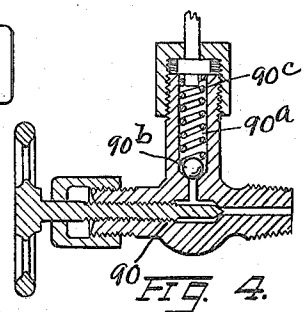


FIG. 4.

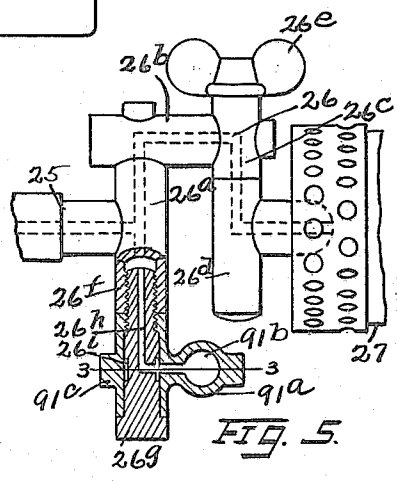


FIG. 5.

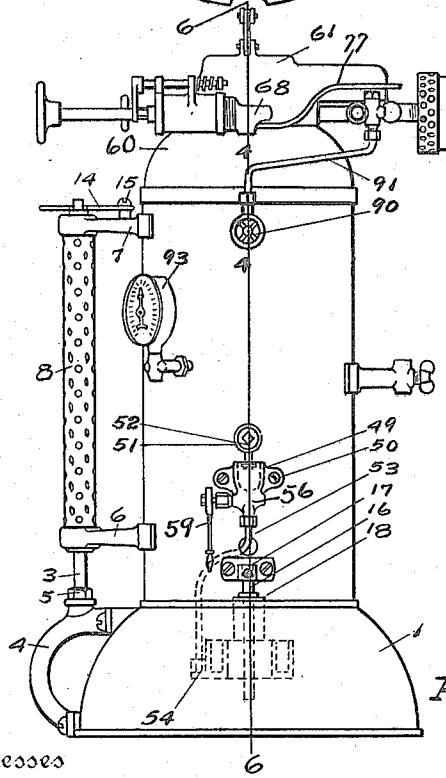


FIG. 1.

Witnesses

B. M. Hartman

V. C. Hess

Inventor

Christian G. Filzer

By H. C. Lord

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. G. FILZER.

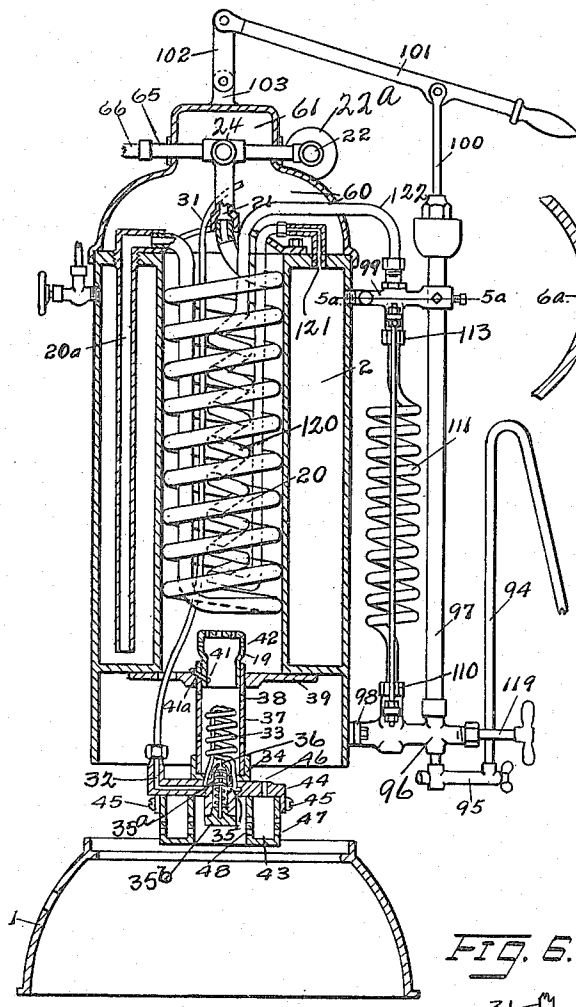
TORCH.

APPLICATION FILED MAR. 17, 1914.

1,135,368.

Patented Apr. 13, 1915.

2 SHEETS—SHEET 2.



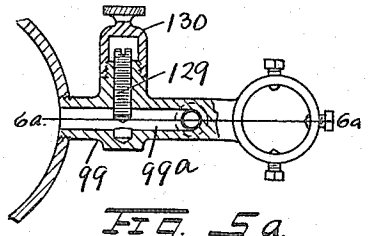


Fig. 5a.

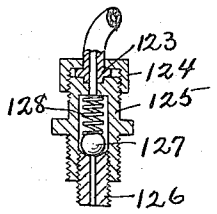


Fig. 6a.

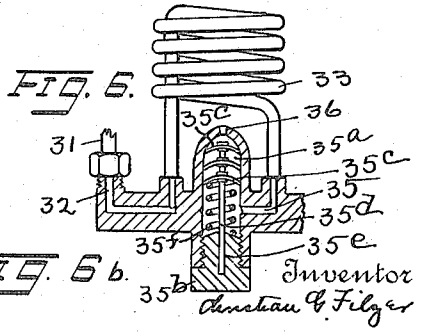


Fig. 6.

Fig. 6b.

Witnesses

B. M. Hartman

V. C. Hess.

Inventor

Christian G. Filzer

By T. R. Rud

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHRISTIAN G. FILZER, OF ERIE, PENNSYLVANIA.

TORCH.

1,135,368. Specification of Letters Patent. Patented Apr. 13, 1915.

Application filed March 17, 1914. Serial No. 825,253.

To all whom it may concern:

Be it known that I, CHRISTIAN G. FILZER, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Torches, of which the following is a specification.

This invention relates to torches and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows a side elevation of the torch. Fig. 2 a plan view of the torch. Fig. 3 a section on the line 3—3 in Fig. 5. Fig. 4 a section on the line 4—4 in Fig. 1. Fig. 5 a plan view of the swivel connection with the burner, the same being partly in section on the line 5—5 in Fig. 3. Fig. 5^a a section on the line 5^a—5^a in Fig. 6. Fig. 6 a central section on the lines 6—6 in Figs. 1 and 2. Fig. 6^a a section of the secondary coil connection, the line of section being on the line 6^a—6^a in Fig. 5^a. Fig. 6^b a detail sectional view of the burner jet.

1 marks the base of the torch, 2 the fuel reservoir and 3 a handle rod. This is mounted on a base handle 4 being secured by a nut 5. The rod 3 is telescopically connected with the handle 8, the handle 8 being carried by the brackets 6 and 7. The torch may be locked in its position on the rod 3 by a latch 14 which is pivotally connected to the bracket 7 by a screw 15. The auxiliary burner 19 is arranged within the fuel reservoir, the fuel reservoir being preferably in the form of an annular chamber. Heat from the auxiliary burner generates pressure in the fuel reservoir and liquid is forced by way of the pipe 20^a into the generating coil 20 where it is highly heated and converted into vapor. The vapor passes by way of the fitting 21 to a fitting 22 and by a pipe 23 to the fitting 24, thence by a pipe 25 to the joint fitting 26 and from the fitting 26 to the main burner, the joint 26 allowing the burner to be swung to any desired position. A valve 28 extends into the fitting 24 and is arranged to cut off the flow of fuel through the fitting 24 to the pipe 25 so as to cut off fuel from the main burner. A pipe 29 extends from the fitting 22 and passes to a regulator 30. The regulator is connected by a pipe 31 to a passage 32 in the base 34 of the auxiliary burner 19. A heating coil 33 is connected with the passage 32 and discharges into a passage 35 leading to a jet opening 36, the jet opening extending upwardly and centrally through the coil 33. A mixer pipe 37 surrounds the coil 33, and burner jet opening 36. It has air openings 38. The pipe 37 is screwed into the bottom plate 39 closing the bottom of the combustion chamber within the walls of the annular chamber 2. The burner cap 42 slips into the upper end of the pipe 37 and is locked in position therein by a pin 41 which extends through the pipe 37 and burner cap 42. The pin 41 also extends into a slot 41^a in the plate 39 thus preventing the turning of the burner or parts with relation to the fuel reservoir. The burner cap 42 has the usual burner openings.

It will be readily seen that when the parts are operating normally vapor is taken from the main supply by way of the pipe 29, regulator 30, pipe 31 and passage 32 to the burner, the vapor being reheated in the coil 33 and the pipe 31 extending within the chamber 2 so as to maintain the fuel in the form of vapor. In this way, the generating coil is heated from the vapor generated by that coil. In burners of this class great difficulty is experienced in keeping the jet openings from clogging. The burner jet 36 is connected with the passage 35 through a chamber 35^a. This chamber extends vertically and is arranged directly below the jet. It is closed at the bottom by a plug 35^b. A series of strainers, preferably wire gauze and formed slightly larger than the chamber 35^a are crowded in to the chamber 35^a, the strainers taking the cup shape shown in Fig. 6^b. The gauze strainers are mounted on a stem 35^d which extends into a socket 35^e in the plug 35^b. By removing the plug, the stem 35^d is exposed so that the strainers may be readily removed and cleaned or renewed. A spring 35^f is arranged around the stem 35^d between the strainers 35^c and the plug 35^b, the purpose of the spring being to force the strainers into the upper part of the chamber 35^a which is preferably dome shape so that a closure is assured at the edge of the uppermost strainer and the walls of the chamber.

In order to start the torch it is necessary to initially heat the generator so as to get the usual pressure in the fuel chamber. To accomplish this, the following devices are used. A starting burner 43 is secured within

the flange 44 on the base plate 34 of the burner. Screws 45 extending through the flange are used for this purpose. The base plate has a series of openings 46 forming burner jets for the burner cup. The burner cup has radial openings 47 and 48 in its exterior and interior walls respectively. These jet openings form a Bunsen burner for the gasolene delivered to the cup so that a hot fire is provided, the flame extending from the jet openings 46. As indicated in Fig. 1 the burner cup and base of the burner are housed in the base 1 when the torch is in use.

In order to charge the starting cup a measuring cup 49 is provided. It is secured by screws 50 to the side of the fuel receptacle. Gasolene is drawn by way of the valve 51 from the fuel receptacle 2, the valve being provided with the key opening 52 whereby it may be operated with a key. A pipe 53 leads from the cup 49 to the fitting 54 leading to the bottom of the starting cup. A valve body 56 is arranged in the bottom of the cup 49 and it has a valve adapted to be operated by a handle 59 so that fuel delivered to the cup 49 by way of the valve 51 may be turned into the starting cup in measured quantities.

The combustion chamber formed within the annular receptacle 2 discharges to a dome 60. A housing 61 is secured on the top of the dome 60, the housing extending from the connection leading from the generator to the main burner and extending to the side next the main burner so that the heated gases from the auxiliary burner coming from the combustion chamber and dome 60 are carried out through this housing along the connections so as to keep these connections hot. It is desirable to be able to observe the flame in the auxiliary burner in order that the auxiliary burner may be properly adjusted and to this end I have provided the peek-holes 62 in the top of the housing through which the burner 19 may be viewed by way of the dome. I provide a closure plate 63 for these openings, the closure plate being preferably of spring metal and pivoted at 64 the common center of the openings so that when swung on the pivot it may be moved to cover or uncover the openings. A safety valve 68 is connected with the system by way of the pipe 65. The discharge from the safety valve is through the pipe 77 which is so directed that the vapor discharged by the safety valve leads to the main burner. In order to give great flexibility and a wide range of capacity to a burner of this type, it is desirable to have the fuel receptacle which in itself is a vapor generator connected with the main burner and provided with a regulating device whereby the fuel receptacle may be used as a means for supplying the vapor to the main burner either wholly or in part. It will be readily seen that when the fuel receptacle is connected with the main burner directly any vapor taken from the fuel receptacle reduces its pressure and consequently reduces the amount of liquid delivered to the coil generator. In this way, a very wide range of adjustment of the flame may be had in a very simple manner. The valve 90 is connected with the top of the fuel receptacle. This valve is connected by a pipe 91 with the swivel connection 26 leading to the burner, the details of the connection being shown in Figs. 3, 4 and 5. The swivel fitting 26 has a lateral portion 26^a connected with a forwardly extending piece 26^b and a joint piece 26^c which is connected with the swivel piece 26^d directly connected to the burner, the swivel piece being adjusted and locked by a screw, the head of which is shown at 26^e. The lateral portion 26^a has a screw threaded extension 26^f. The pipe 91 is connected with a fitting 91^a. This fitting has a vertical portion 91^b and a horizontal portion 91^c. The pipe 91 is connected directly to the vertical portion 91^b. A screw 26^g extends through the horizontal portion into the screw threaded extension 26^f. It has a way 26^h through it and the annular groove 26^i around it connected with the vertical portion 91^b of the fitting. A check valve 91^d is arranged in the chamber 91^e in the vertical portion 91^b. The check is held to its seat by a spring 91^f, the spring being between the ball and the plug 91^g closing the end of the chamber. This check prevents the flow of the vapor from the coil generator to the fuel chamber by way of the pipe 91. A second check is arranged in the connection, the check being on the valve 90, the valve having a chamber 90^a in which the ball check 90^b is arranged. The ball is held in place by a spring 90^c (see Fig. 4).

Fuel is delivered to the fuel reservoir as follows: An inverted U tube 94 is connected with a fitting 95. The check valve fitting 96 is connected with the fitting 95 and the pump barrel 97 extends from the fitting 96. The fitting 96 is secured to the bracket 98. A fitting 99 extends from the upper end of the fuel receptacle 2 and forms a support for the pump barrel 97 at its upper end. The plunger 100 operates in the barrel and is connected with a handle 101. The handle is fulcrumed on a link 102, the link being carried by a post 103 on the top of the housing 61. The check valve fitting is connected by a coil 111 with a fitting 99 by a flanged nut 113. The pipe 111 makes a connection with the fuel receptacle through the fitting 99 (see Fig. 5^a).

It is sometimes desirable to increase the pressure in the fuel receptacle above what it would have heating directly from the burner. For this reason an auxiliary coil 120 is provided. This is connected with the

top of the fuel receptacle through a fitting 121 and by a pipe 122 with the top of the fitting 99. The pipe 122 terminates in a flange 123 and it is secured to a check valve body 125 by a flange nut 124. The check valve body 125 screws on to an upright 126 on the fitting 99 (see Fig. 6ª). The check 127 is arranged in the body 125, the check being held to its seat by a spring 128. A resistance valve 129 is arranged to regulate the passage 99ª in the fitting 99. It is in the form of a screw, the screw being covered by a cap 130 to prevent accidental changes in adjustment. Where a high pressure is desired, resistance may be secured by closing the valve 129 so that a portion of the fuel pumped will pass by way of the valve 127 and pipe 122 to the auxiliary coil where it will be converted into vapor and delivered to the fuel chamber. This added pressure will turn a greater quantity of fuel into the coil 20 and consequently generate greater pressure. Where this added pressure is not desired, the valve 129 is opened and the spring 128 is sufficient to prevent the passage of fuel to this secondary coil.

It will be observed that the coil 20 acts as the main generator, that the reservoir 2 in a secondary sense acts as a generator and forms the secondary generator and that the coil 120 acts as a third generator.

What I claim as new is:—

1. In a torch, the combination of two vapor generators; a connection between the generators through which one feeds fuel to the other by its pressure; a burner; burner connections from each generator to the burner; and means for controlling each burner connection.

2. In a torch, the combination of a main vapor generator; a secondary vapor generator; a connection between the main generator and the secondary generator through which the secondary generator feeds fuel to the main generator by its pressure; an auxiliary burner for heating said generators; a connection from one of the generators to said auxiliary burner; a main burner; a connection from each generator to the main burner; and means for controlling each connection leading to the main burner.

3. In a torch, the combination of a main vapor generator; a secondary vapor generator; a connection between the main generator and the secondary generator, the main generator being supplied with fuel from the secondary generator through this connection; an auxiliary burner supplied with fuel from the main generator; a main burner; connections from each of said generators to said main burner; and means for controlling said connections leading to said main burner.

4. In a torch, the combination of a main vapor generator; a secondary vapor generator forming a fuel supply chamber; a main burner; connections between the main generator and secondary generator with the main burner; means for controlling each of said connections; a third generator connected with the secondary generator and having means for supplying fuel to the secondary generator; and a connection between the third generator and said means.

5. In a torch, the combination of a main generator; a secondary generator forming a fuel supply chamber; a main burner; connections between the main generator and secondary generator with the main burner; means for controlling each of said connections; a third generator connected with the secondary generator and having means for supplying fuel to the secondary generator; a connection between the third generator and said means; an auxiliary burner for heating said generators; and a connection between the auxiliary burner and one of said generators.

6. In a torch, the combination of a main generator; a secondary generator; a connection between the main generator and the secondary generator through which fuel is supplied from the secondary generator to the main generator by its pressure; a main burner; burner connections between each of said generators and the main burner; means for controlling said burner connections; and a check in the burner connection between the burner and the secondary generator for preventing a return flow to the secondary generator.

7. In a torch, the combination of a generator; a burner; a connection between the generator and the burner carrying vapor from the generator to the burner; a tube in the connection, said tube having a domed end; a strainer in the tube; and a spring for forcing the strainer into connection with the domed end to make a closure at the edges.

8. In a torch, the combination of a generator; a burner; a connection between the generator and the burner carrying vapor from the generator to the burner; a vertical tube in the connection, said vertical tube having a domed end; cup shaped strainers in the tube; a plug closing the tube, said plug having a socket therein; a stem on the strainer extending into the socket; and a spring between the strainers and the plug.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHRISTIAN G. FILZER.

Witnesses:
B. M. HARTMAN,
V. C. HESS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."