April 22, 1930. W. L. RICHARDSON 1,755,664

HYDROCARBON TORCH

Filed March 13, 1929

Fig. 1.

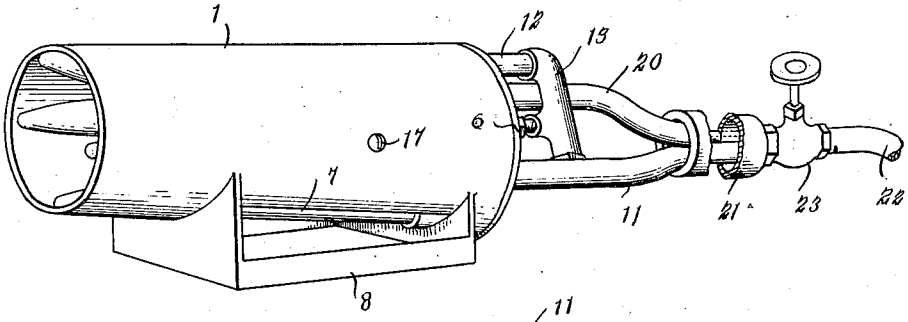


Fig. 2.

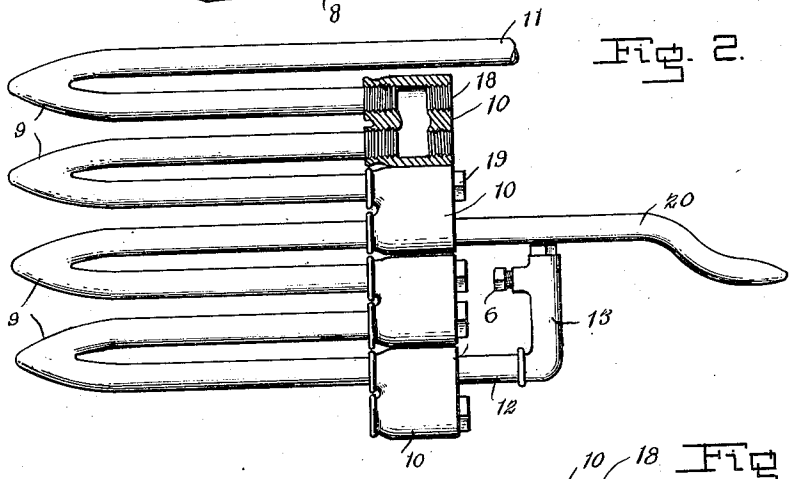


Fig. 3.

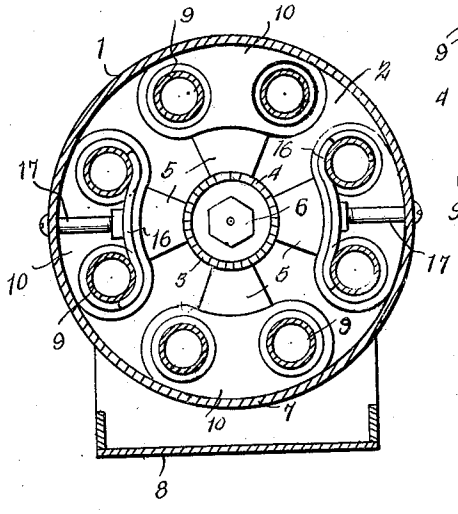
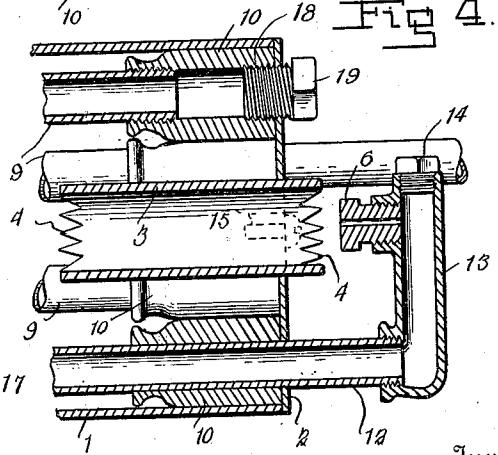


Fig 4.



Inventor

W. L. Richardson

By Lacey & Lacey, Attorneys

Patented Apr. 22, 1930 1,755,664

UNITED STATES PATENT OFFICE

WILBERT L. RICHARDSON, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO REYNOLDS PORTABLE FURNACE CO., OF LOUISVILLE, KENTUCKY, A CORPORATION OF KENTUCKY

HYDROCARBON TORCH

Application filed March 13, 1929. Serial No. 346,613.

The invention provides a burner for general use as a torch and utilizing kerosene, or other hydrocarbon, as fuel.

The invention supplies a burner which may be readily cleaned, so as to maintain its efficiency, and which may be applied to oil burning furnaces, or used as a torch for asphalt heaters, and for thawing out gravel and sand beds, pipes on locomotives and for any desired purpose for which a torch is adapted.

While the drawing illustrates a preferred embodiment of the invention, it is to be understood that in adapting the means to meet specific needs and requirements, the design may be varied and such other changes in the minor details of construction may be resorted to within the scope of the invention as claimed, without departing from the spirit thereof.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and the drawing hereto attached, in which:—

Figure 1 is a perspective view of a hydrocarbon burner embodying the invention, the intermediate portion of the handle being broken away,

Figure 2 is a developed view of the burner,

Figure 3 is an enlarged transverse sectional view of the burner,

Figure 4 is a fragmentary longitudinal sectional view of the burner.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawing by like reference characters.

The burner includes a shell or casing 1 for confining the heat and flame. The shell 1 tapers slightly throughout its length and is closed at its rear end by means of a plate 2. A tube 3 is applied to the plate 2 at a central point and projects beyond opposite sides of the plate and terminates at opposite ends in points, as indicated at 4. A plurality of openings 5 are formed in the plate 2 and are grouped about the tube 3 and provide for admission of air to mix with the gas issuing in a jet from the burner tip or nozzle 6. A portion 7 is cut from a side of the casing or shell 1 and a pan 8 is located opposite the opening thus formed and is secured to the shell.

A preheating coil or generator is located within the shell or casing 1 and comprises a plurality of loops 9, the same being disposed in circular form adjacent the shell or casing 1, as indicated most clearly in Figure 3 of the drawings. The loops 9 are pointed at their outer or forward ends, and are connected in series at their inner or rear ends by means of unions 10 which consist of hollow castings to each of which a leg of adjacent loops is connected, as shown most clearly in the developed view in Figure 2 of the drawings. A leg of an end loop is extended and connected to a supply pipe 11. A leg of the opposite end loop is extended, as indicated at 12, and connected to a burner tube 13 which is provided in a side with a threaded opening to receive the nozzle or tip 6.

A plug 14 closes the end of the burner tube 13 adjacent the nozzle or tip and admits of the burner being readily cleaned. The end plate 2 is connected to the unions or fittings 10 by means of screws 15. The shell or casing 1 is clamped to the coil or generator by means of plates 16 and screws 17, the latter passing through openings formed in the shell 1 and engaging threaded openings formed in the plates 16. Openings 18 are formed in the outer or rear walls of the unions 10, in line with the legs of the loops 9 coupled thereto, and provide for cleaning the loops of any carbon that may collect therein. Plugs 19 normally close the openings 18 and may also serve as supplemental means for connecting the end plate 2 to the preheating coil or generator. A section of pipe 20 projects from one of the unions or fittings 10 and is disposed opposite the suply pipe 11 and coacts therewith to provide means for the attachment of a handle 21 to the burner, said handle being of wood or other suitable material to prevent heating. A flexible tube 22 is connected to the pipe 11 and supplies hydrocarbon from a suitable source to the burner. A valve 23 in the length of the supply pipe admits of controlling the flow of hydrocarbon therethrough.

The kerosene or other hydrocarbon flows

through the loops 9 and unions or fittings 10 in a tortuous path and is heated and converted into vapor which escapes through the nozzle or tip 6 and flows through the tube 3 in a jet which draws air into said tube and through the openings 5, the resultant mixture burning at the inner end of the tube 3 and producing an intense heat which vaporizes the fuel in its flow through the coil or generator. The flame is confined by the shell or casing 1 and shoots beyond the end of said shell or casing to be utilized in any determinate way. The burner is primed by supplying a small quantity of liquid fuel to the pan 8 and igniting the same and when the coil or generator is sufficiently heated the valve 23 is opened to admit of the hydrocarbon flowing into the coil or generator which vaporizes the fuel to produce the gas which escapes from the tip or nozzle in a jet to be utilized in a manner stated.

Having thus described the invention, I claim:—

1. A hydrocarbon burner comprising a plurality of loops grouped about a central line, hollow castings connecting the loops in series to form a preheating coil or generator, and having clean out openings in line with the element of the loops coupled thereto, a casing enclosing the coil, connecting means between the casing and coil, a plate closing the rear end of the casing and having openings in register with the cleanout openings of the hollow castings, a tube supported centrally of the plate and projecting beyond opposite sides thereof and formed at opposite ends with a series of points, said plate having openings exterior to the tube for admission of air, and plugs closing the clean out openings of the hollow castings and connecting them to the plate disposed at the rear of the casing.

2. A hydrocarbon burner comprising a casing, a generating coil therein including loops and hollow castings connecting the loops in series and formed with threaded openings in line with the elements of the respective loops, a plate closing the rear end of the casing, and plugs closing the openings of the hollow castings and forming connecting means between said castings and the rear closing plate of the casing.

3. A hydrocarbon burner comprising a casing tapered in its length and having an opening in its bottom side, a pan mounted on a side of the casing opposite the opening formed in the bottom side thereof, a plate closing the rear end of the casing, a centrally disposed tube carried by said plate, a generating coil within the casing including loops having their forward ends pointed, and hollow castings connecting the legs of the respective loops and provided with cleanout openings in line with the legs thereof, and plugs closing the said cleanout openings and connecting the coil to the plate closing the rear of the casing.

In testimony whereof I affix my signature.

WILBERT L. RICHARDSON. [L. S.]