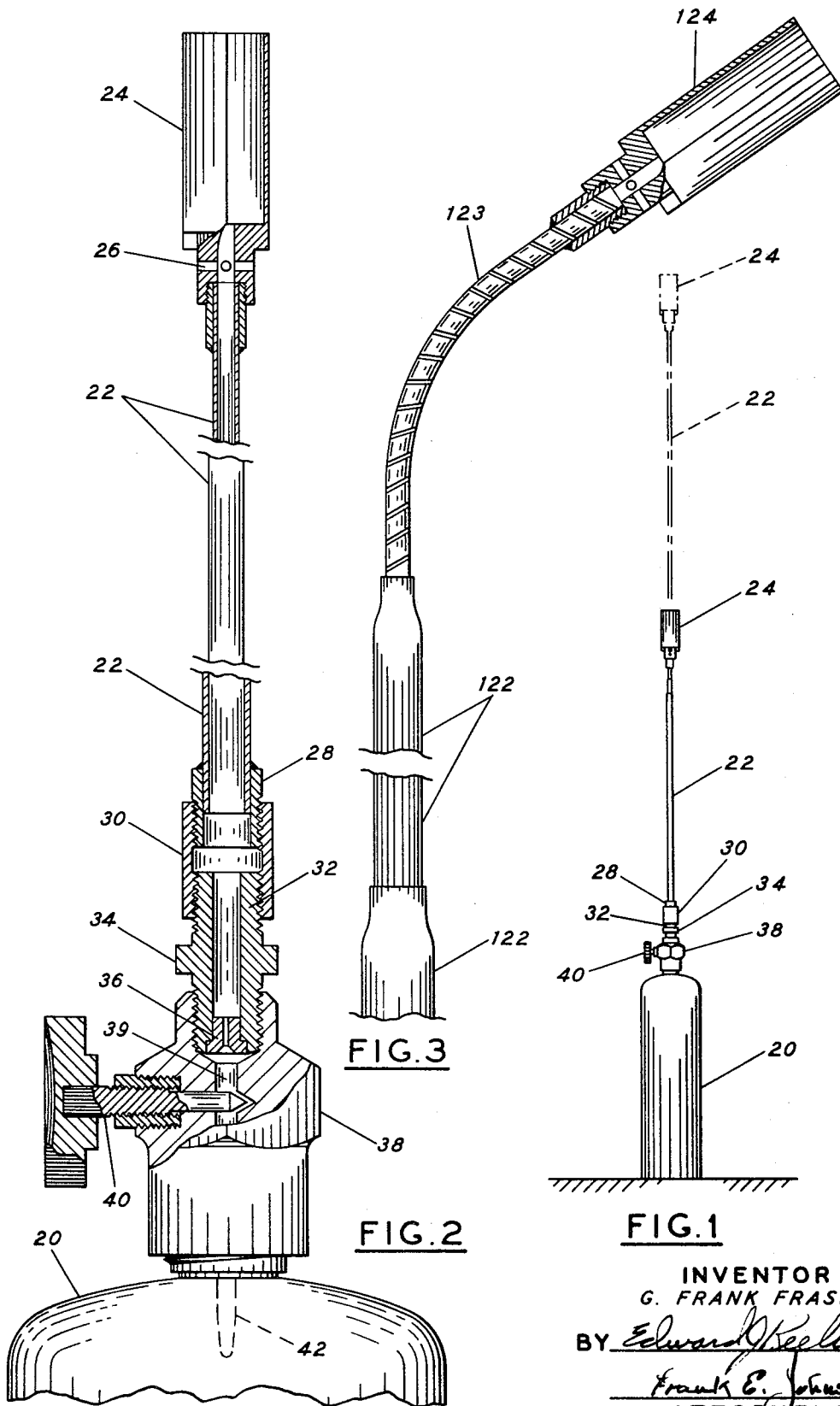


July 4, 1972

G. F. FRASER
PORTABLE LIGHTER FOR FIRING OIL FIELD
HEATERS AND EMULSION TREATERS
Filed Dec. 17, 1970

3,674,413



INVENTOR
G. FRANK FRASER

BY *Edward Keeling*
Frank E. Johnston
ATTORNEYS

1

3,674,413

PORTABLE LIGHTER FOR FIRING OIL FIELD HEATERS AND EMULSION TREATERS

G. Frank Fraser, Bentley, Alberta, Canada, assignor to
Chevron Research Company, San Francisco, Calif.

Filed Dec. 17, 1970, Ser. No. 99,028

Int. Cl. F23d 13/04

U.S. Cl. 431-344

1 Claim

ABSTRACT OF THE DISCLOSURE

A portable lighter for use in lighting field heaters and including a burner tip connected to a portable fuel source by means of a telescopic fuel conduit.

BACKGROUND OF THE INVENTION

The present invention is directed to a portable burner useful in lighting oil well field heaters and the like and, more particularly, the invention is directed to a portable burner having a telescopic fuel gas tube which is extendible and useful in lighting burners for field heaters and emulsion treaters.

In oil field operations, particularly in the use of field heaters or emulsion treaters, a problem arises when it is necessary to light or relight burners of the heaters. This is particularly true during cold weather operations when the heaters are fired up initially or must be relit due to unfavorable wind conditions. Field practice heretofore was to use a rag soaked in a fuel such as methanol and to attach the rag to the end of a wire or a length of one-half inch pipe. The rag was ignited and inserted into the fire box of the field heater while the operator moved away from the front of the fire box and opened the fuel gas line to ignite the burner. This field practice was not particularly satisfactory, however, due to problems of efficient lighting and safety and to the problem of disposing of the flaming rag after lighting of the heater was accomplished. There is need, therefore, for a portable burner useful to light a large variety of field heaters and emulsion treaters used in oil field work.

BRIEF DESCRIPTION OF THE INVENTION

The present invention provides a portable burner having a telescopic fuel gas tube and a burner tip useful to light field heaters. The apparatus of the present invention includes a burner tip connected onto one end of a telescopic tubular member. An orifice means sized for use with a predetermined fuel is removably connected to the other end of the tubular member. A valve means is connected to the tubular member upstream of the orifice means to control flow through the orifice means and the tubular member to the burner tip. The valve means is adjustable to control the length the flame issuing from the burner tip. A fuel source is connected to the tubular member through the valve means for supplying fuel to the burner tip.

OBJECTS OF THE INVENTION

A particular object of the present invention is to provide a versatile portable burner having a telescopic tube and a burner tip for use in lighting field heaters. Further objects and advantages of the present invention will become apparent from the following detailed description read in view of the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is an elevation view and illustrates the preferred embodiment of apparatus assembled in accordance with the present invention. FIG. 2 is a partial elevation view,

2

with parts broken away for clarity of presentation, and illustrates features of the preferred embodiment of apparatus of the invention. FIG. 3 is a partial elevation view, with parts removed for clarity of presentation, and illustrates an alternative embodiment of apparatus assembled in accordance with the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Refer now to FIGS. 1 and 2, where apparatus assembled in accordance with the preferred embodiment of the invention is shown. A suitable portable fuel source 20 is connected to a telescoping conduit 22 and provides fuel for burning in burner tip 24. A standard fuel gas bottle containing propane is preferred for use in the present invention. Other bottle fuels are also useful with the present apparatus when suitable adjustments to the conduits and orifice are made. The burner tip 24 has a design suitable for burning propane or similar fuel gas. The tip is preferably nonadjustable since flame size is adjusted at the fuel source. Air vents 26 provide air for mixture with the fuel to insure proper combustion of the fuel.

The telescoping conduit 22 is preferably formed of a series of concentric tubes slideably received within one another. The overall length of the tube is designed in accordance with the range of service required for particular installations. The extendible position of the present apparatus is illustrated in phantom in FIG. 1. The upstream end of the telescoping tube is connected through suitable adapters to the fuel gas source 20. For example, adapter 28 is fixedly connected to telescoping tube 22 and threadably engages one end of collar 30. The other end of collar 30 receives a short tubular fitting 32 having a hexagonal portion 34 fixedly attached to its outer surface. The upstream end of the tubular member 32 is machined to receive an orifice 36 suitably sized for the particular gas being used. Thus in the preferred embodiment, the orifice is sized for propane. The outer portion of the upstream end of the tubular member 32 contains threads for connecting the tubular member to the shut-off valve means located upstream of the orifice means. If it is desired to change orifices, tubular member 32 is unscrewed from the valve means and a new orifice positioned in the tubular member. The tubular member 32 is then re-engaged in the valve means.

The shut-off valve means includes a body member 38 having a central opening 39 extending therethrough. A needle valve 40 is provided to adjustably control flow through the central opening of the body member. By regulating needle valve 40 the length of the flame emitted from burner tip 24 is controlled. The other end of the valve means includes a probe 42 for inserting into the fuel bottle 20. Suitable threads are provided on the valve body for connection with the fuel source 20. The orifice is positioned immediately downstream of the valve assembly and upstream of the telescoping conduit. This is an important feature of the present invention. When the orifice and the valve assembly are both upstream from the telescoping fuel tube should the orifice plug up then any of the pressure buildup will be in the high pressure adapters and not in the telescoping fuel tube. If pressure were to increase undesirably in the telescoping tube, rupture of the tube and flash fire could occur.

FIG. 3 is a partial elevation view and illustrates an alternative embodiment of apparatus assembled in accordance with the present invention. As there shown, a burner tip 124 is connected to a telescoping tubular member 122. The tubular member 122 connects the burner tip through appropriate valve and orifice means to a source of fuel (not shown). The upper portion of the extendible tubular member is formed by a flexible tubular member 123 which may be bent to a desired shape, as illustrated in FIG. 3,

3

to allow the burner tip to be used in confined locations. The flexible member 123 is retractable into the telescoping tubular member 122.

Although only certain specific embodiments of the present invention have been described in detail, the invention is not limited thereto but is meant to include all embodiments coming within the scope of the appended claim.

I claim:

1. A portable burner comprising a burner tip, a telescopic conduit having a flexible section connected at one end to said burner tip, orifice means disconnectably connected in the other end of said telescopic conduit, a self-contained source of fuel connected to said conduit upstream of said orifice means and adjustable valve means between said fuel source and said orifice for controlling

4

flow from said fuel source to said orifice and said telescopic conduit.

References Cited

UNITED STATES PATENTS

325,087	8/1885	Hull	239—587 X
3,388,962	6/1968	Baumann et al.	431—344
2,699,216	1/1955	Allen	169—31 R
3,143,107	8/1964	Lindgren	431—344 X
3,001,573	9/1961	Hunter et al.	239—587 X

CARROLL B. DORITY, JR., Primary Examiner

U.S. Cl. X.R.

239—588