

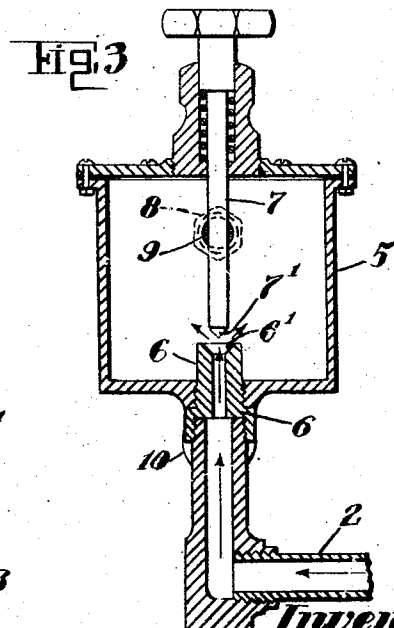
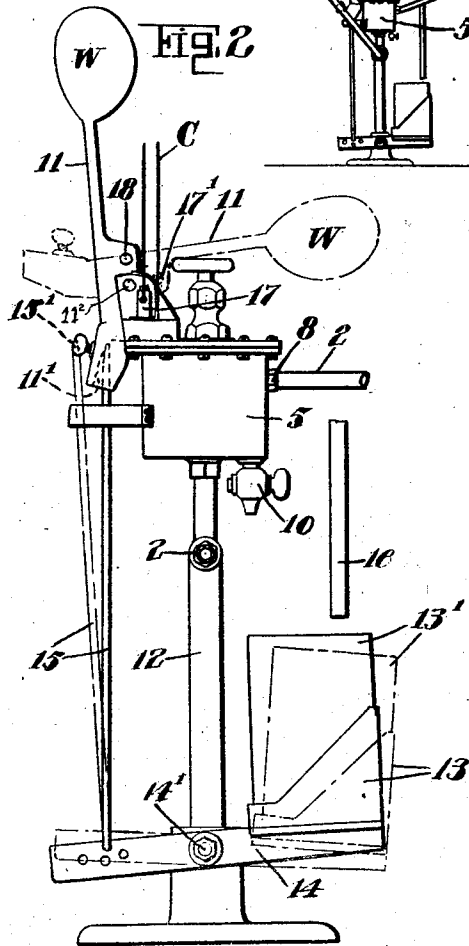
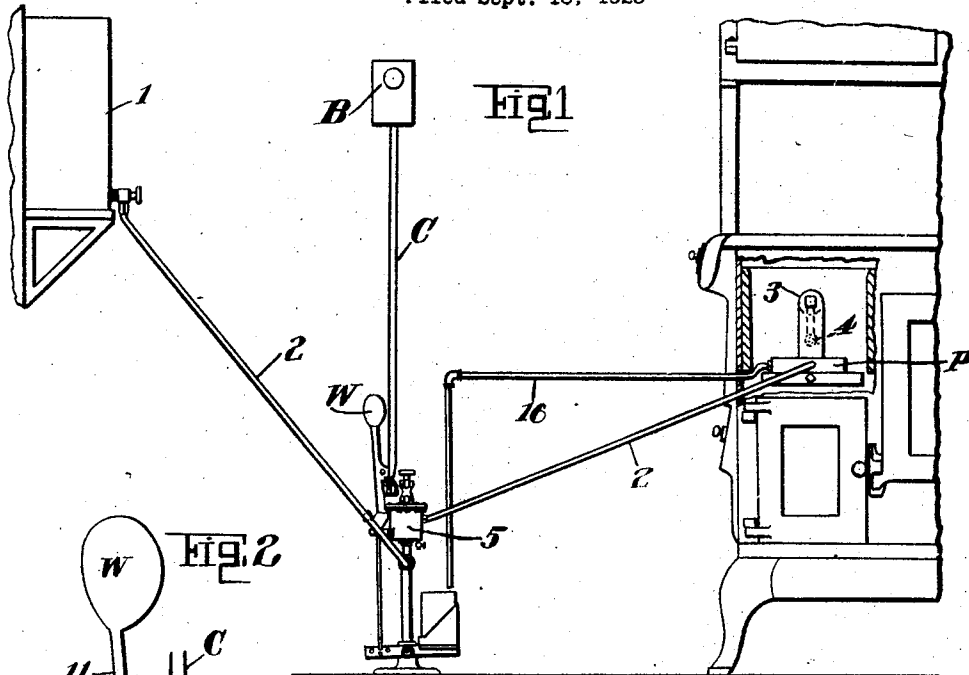
Sept. 22, 1925.

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C. E. ANDERSON

LIQUID BURNER SYSTEM

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Inventor
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UNITED STATES PATENT OFFICE.

CARL E. ANDERSON, OF BROCKTON, MASSACHUSETTS.

LIQUID-BURNER SYSTEM.

Application filed September 18, 1923. Serial No. 663,508.

To all whom it may concern:

Be it known that I, CARL E. ANDERSON, a citizen of the United States, residing at Brockton, county of Plymouth, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Liquid-Burner Systems, of which the following is a specification.

In the use of liquid fuel burners and particularly in those adapted for domestic use such as in kitchen ranges and the like, much difficulty has been experienced from the results following accidental extinguishment of the flame. Particularly in such systems as gasify the fuel before burning it, is there constant danger of the clogging of burners or feed pipes or by the accumulation of water or sediment whereby the flame is extinguished permitting the gasifying chamber to cool while the flow of the oil continues. These are recognized causes of danger and are to be avoided.

In accordance with my invention I provide a system in which there is a cut off operable by any initial overflow of liquid fuel due to extinguishment or otherwise. For the purposes of illustration I have selected a simple form of system and cut off which I have found well adapted to practical use and I will discuss my invention with reference to such a system as both illustrative of the principles involved and as showing convenient and practical apparatus well adapted to use. Throughout the specification and drawings like reference characters are employed to indicate corresponding parts, and in the drawings:

Fig. 1 is a general view of such a system.

Fig. 2 a view of the cut off apparatus, and

Fig. 3 a detail section of the cut off valve for the same.

In the system shown I have indicated at 1 a tank as a source of supply for a gravity feed line 2 leading to a gasifying chamber 3 which feeds a burner 4. These I have shown as located in the fire box of a range although it will be understood that the burner may be of any type and used with any kind of a range, heater or even fireplace.

Cut in on the feed line 2 is a cut off consisting of a small chamber 5 into the bottom of which the feed line 2 enters through a valve seat fitting 6 raised slightly above the bottom level. Guided in the top of the chamber 5 is a valve stem 7 having a ground

valve end 7¹ which cooperates with the valve seat 6¹ of the fitting 6.

The outlet to feed pipe 2¹ is through the fitting 8 which is provided with a strainer 9. Any foreign matter in the fuel is therefore trapped in the chamber 5 which is provided at its bottom with a pet cock 10 by which the chamber can be drained.

Pivoted to 11² one side of the chamber top is a lever 11 weighted as at W at its long end and having its short end provided with an elongated notch 11¹. A set screw is also provided to make adjustment so that when the lever 11 is raised its weight W will stand just back of the vertical of its point of pivot and be thus maintained in raised position. In other words the lever 11 when raised to full position shown in Fig. 2 is just enough off center on its pivot so as to be maintained in raised position by gravity acting outside of its pivot 11² with its lower end bearing on the upper end of the rod 15.

The chamber 5 is supported on a low stand 12 so that it can be conveniently located with respect to the burner. From the pan P of the burner a drain pipe 16 leads adjacent the cut off where it terminates over the removable cup 13¹ which fits in a holder 13 on a lever 14 fulcrumed at 14¹ to the stand 12.

From the opposite end of the lever 14 rises a release rod 15 the upper end 15¹ of which can be positioned in the notch 11¹ of the lever 11.

When now the burner is lighted and the system is in proper operation with the burner lighted, the liquid fuel flowing to the vaporizing chamber 3 is converted to gas and burned at the nozzle 4. If the flame be extinguished and be not immediately relighted the chamber 3 cools and the fuel flows through the nozzle 4 and floods the pan P.

The overflow passing through the pipe 16 begins to fill the cup 13¹. I usually provide the balance and leverage so that 2 or 3 ounces of oil will be sufficient to counterbalance the weight W of the lever 11 so that it will be tipped forward and fall on the end of the valve stem 7. This drives the valve 7¹ to its seat and shuts off the feed line 3 which will remain closed until reset.

To give warning of the extinguishment of the burner I provide at the top of the chamber 5 suitably insulated binding posts 17 having bent spring contacts 17¹. The

lever 11 is provided with a cross pin 18 which acts as a circuit closer for any suitable circuit as C. This may conveniently be cut in on the circuit of a door or service bell B which will continue to ring as long as the burner remains accidentally extinguished. Such a cut off is simple and inexpensive and affords an important factor of safety in such systems.

Various modifications in the form and arrangement of cut off and its position may be made. It may also be combined in various systems and all without departing from the spirit of my invention if within the limits defined in the claims.

What I therefore claim and desire to secure by Letters Patent is:—

1. A gravity actuated cut off for a supply system, comprising a valve, resilient means for holding said valve open, a weighted arm pivoted adjacent thereto and disposed to contact the valve stem in its fall, said arm having a stop for positioning it in raised position just back of its center of gravity, a pivoted lever, a drip pan on one end of said lever, and a push rod connected to the other end of said lever, and having one end engaging said arm to the rear of its center of gravity whereby it may be tipped beyond said center upon the loading of the pan.

2. A gravity actuated cut off for a supply

system, comprising a reciprocating valve, resilient means for holding said valve open, a weighted arm pivoted adjacent thereto and disposed to contact the valve stem in its fall, said arm having an adjustable stop for positioning it in raised position just back of its center of gravity, a pivoted lever, a drip pan on one end of said lever, and a push rod adjustably connected to the other end of said lever, and having one end engaging said arm to the rear of its center of gravity whereby it may be tipped beyond said center upon the loading of the pan.

3. A gravity actuated cut off for a pressure supply system, comprising a reciprocating valve, a projecting stem on the valve, resilient means for holding the stem in projected position, a weighted arm pivoted adjacent thereto and disposed to contact the valve stem in its fall, said arm having a stop for positioning it in raised position just back of the center of gravity, a pivoted lever, a drip pan on one end of said lever, and a contact between said lever and said arm having one end engaging said arm slightly to the rear of its center of gravity, whereby it may be tipped beyond said center upon a slight loading of the pan.

In testimony whereof I affix my signature.

CARL E. ANDERSON.