

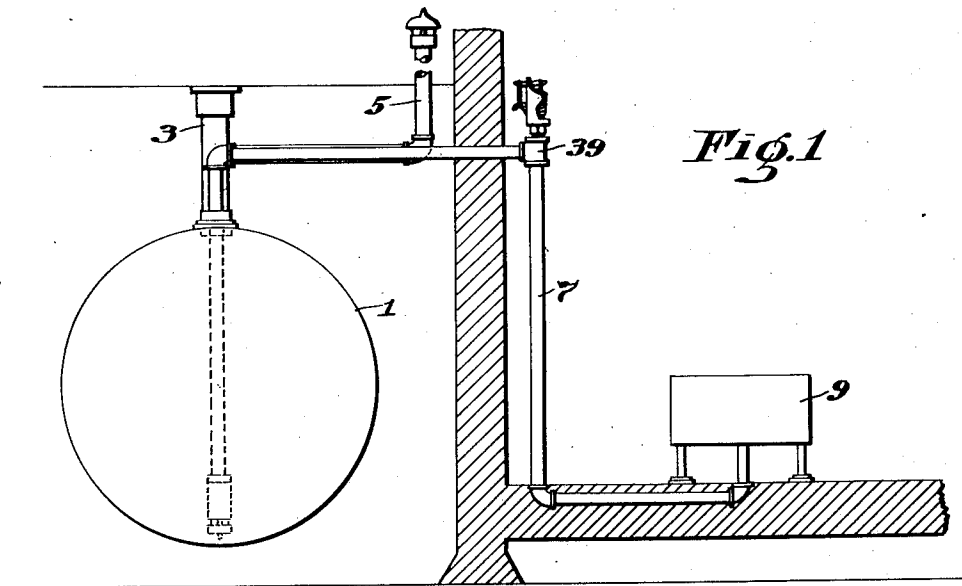
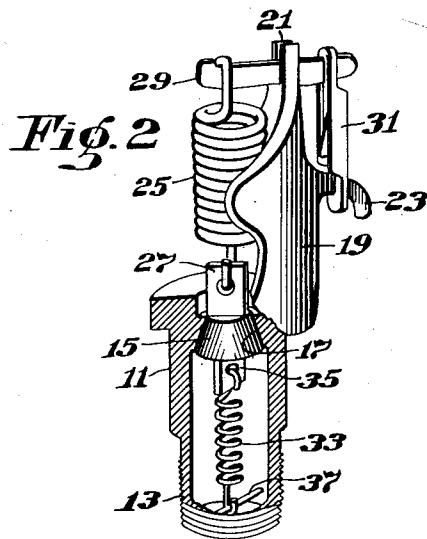
Aug. 1, 1933.

H. E. LAKE

1,920,647

SIPHON BREAKER FOR OIL BURNING SYSTEMS

Filed June 24, 1930



INVENTOR:
Henry E. Lake
BY *Henry T. Williams*
ATTORNEY

UNITED STATES PATENT OFFICE

1,920,647

SIPHON BREAKER FOR OIL BURNING
SYSTEMS

Harry E. Lake, Brookline, Mass.

Application June 24, 1930. Serial No. 463,377

6 Claims. (Cl. 137-161)

The invention to be hereinafter described relates to oil burning systems, and more particularly to a simple and effective device for preventing oil from siphoning from the oil tank and flooding the basement in case of fire.

Heretofore a valve has been provided within the piping conducting the oil from the tank to the burner, urged to its seat by a weight or spring and opened by suction produced by the oil feed pump. This adds to the duty of the pump, a strainer is necessary to protect the delicate valve seat, and after the pump becomes slightly worn it will not exert sufficient suction to pull the valve from its seat.

The device of the present invention operates on a different principle. It eliminates the necessity of providing this valve, relieves the pump from the burden of opening a weighted or spring-pressed valve, and lengthens the period of usefulness of the pump. Also it permits the oil strainer to be placed nearer to the burner or in the burner if desired.

The character of the invention may be best understood by reference to the following description of one good form thereof shown in the accompanying drawing, wherein:

Fig. 1 is an elevation of an oil burning system including the invention; and

Fig. 2 is a view partly in perspective and partly in section of the siphon breaker.

Referring to the drawing, 1 designates an oil tank provided with a pipe 3 for conducting oil to the tank, and a vent pipe 5. The oil is conducted through piping 7 from the tank to a burner unit 9 of usual construction unnecessary to show and describe in detail herein. The burner may be of the gravity feed type, or it may be provided with an oil feed pump. In either case suction is established in the pipe line between the tank and burner, so that if a break occurs in the pipe line, the liquid fuel will be liable to be siphoned from the tank and flood the basement floor.

The present invention employs a fitting in the form of a plug 11 having a threaded lower end 13. In the upper end of the fitting is a tapered valve 15 having a seat 17. Rising from the top of the plug is a support in the form of a shield 19 having a fork 21 at the top and a spur 23 projecting from the back thereof. A coil spring 25 has its lower end connected to a fin 27 on the valve, and its upper end connected to a lever 29 seated in the shield fork 21. A fusible link 31 of usual construction has its lower end connected to the spur 23, and its upper end connected to

the lever 29. The coil spring, lever and link normally hold the valve in closed position. A coil spring 33 has its upper end connected to a fin 35 on the valve, and its lower end connected to a cross pin 37 in the lower end of the plug, and urges the valve to open position, but the coil spring 25 is considerably heavier, and therefore the lower spring does not become effective until the heavier spring is released by the fusing of the link 31.

In applying this device to the system, it is merely necessary to place a T union 39 in the pipe line at the highest point thereof, and to screw the fitting into the union. It will be noted that the suction in the pipe line, 7, produces an inequality of pressures on opposite faces of the air inlet valve, 15, and the excess pressure of the air on the outer face of the valve tends to push it inward in a direction to open the valve. This tendency is of course overcome by the connections including the fusible link which holds the valve closed. In case of fire and melting of the link 31, the spring 25 will be released and the spring 33 will become effective to pull the valve from its seat, thereby admitting outside air into the pipe line, breaking the siphon action, and interrupting the flow of oil from the tank. In this action the spring, 33, acts on valve, 15, in the same direction as the suction in pipe, 7, which co-operates with the spring, 33, in positively insuring the opening of the valve even if it is stuck on its seat. Normally the valve is held tightly to its seat, so that there is no loss in the suction effect produced by the pump.

This device is simple and cheap in construction; of pleasing design, easy to apply, and has no moving parts to chatter and be subject to wear and liability of getting out of order.

While the invention has been described more particularly in respect to a system in which oil is fed from a tank to a burner, it will be readily apparent that the system is useful where other liquids are conducted, and it is desirable to interrupt the flow in case of fire, or when temperature rises to a predetermined point.

It will be understood that the invention is not limited to the specific embodiment shown, and that various deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What is claimed is:

1. A siphon breaker for oil burning systems comprising a casing provided with means for connecting it with and in communication with a suction fuel line, and provided with an air inlet ap-

erture, a valve normally closing said air inlet aperture, and located with respect thereto in position to be acted on by the suction in the fuel line in a direction to open the valve, securing means including a fusible link for holding said valve seated against the suction in the fuel line, and means acting on the valve in the same direction as the suction on the fuel line, and co-operating therewith for positively insuring the unseating of said valve on the fusing of the fusible link.

2. A siphon breaker for oil burning systems comprising a casing provided with means for connecting it with and in communication with a suction fuel line, and provided with an air inlet aperture, a valve normally closing said air inlet aperture, and located with respect thereto in position to be acted on by the suction in the fuel line in a direction to open the valve, securing means including a fusible link for holding said valve seated against the action of suction in the fuel line, and means including a spring acting on the valve in the same direction as the suction in the fuel line, said spring being normally held by said securing means under sufficient tension to insure the unseating of said valve when released by the fusing of said fusible link.

3. A siphon breaker for oil burning systems comprising a casing provided with means for connecting with and in communication with a fuel line, and provided with an air inlet aperture, a valve normally closing said air inlet aperture and located in respect thereto in position to be acted on by suction in the fuel line in a direction to open the valve, securing means including a spring and fusible link operatively connected therewith for holding said valve seated, a spring of less strength than the spring of said securing means operatively connected with said valve, and held by said securing means under sufficient tension to insure the unseating of said valve when said securing means is released on the fusing of the fusible link.

4. A siphon breaker for oil burning systems comprising a casing provided at one end with means for connecting it with and in communication with a fuel line, and provided adjacent to its other end with an air inlet aperture, an inwardly opening valve normally closing said air inlet aperture, securing means interposed between said valve and a part in fixed relation with said casing and including a fusible link and a spring operatively connected therewith for holding the valve seated, and a spring connected at one end to said casing and at the other end to said valve, said latter spring being of less strength than the

securing spring and held by the latter under tension sufficient to insure the unseating of said valve when the securing spring is released on the fusing of said fusible link.

5. A siphon breaker for oil burning systems comprising a casing provided at one end with means for connecting it with and in communication with a fuel line, and provided adjacent to its other end with an air inlet aperture, an inwardly opening valve normally closing said air inlet aperture, said casing being provided with a curved shield projecting above the end of said casing containing the air inlet, and provided with means for supporting a lever, a lever carried by said shield and disposed substantially radially with respect thereto, a spring located within said shield and connected to said valve and to one end of said lever, a fusible link connected to the other end of said lever and to a fixed portion of said shield, and lying entirely on the outer side of said shield, and a spring within said casing connected at one end to said air inlet valve and at the other end to said casing and having less strength than said first mentioned spring, and being held by the latter under tension sufficient to insure the unseating of said valve when the securing spring is released, on the fusing of said fusible link.

6. A siphon breaker for oil burning systems comprising a casing provided at one end with means for connecting it with and in communication with a fuel line, and provided adjacent to its other end with an air inlet aperture, an inwardly opening valve normally closing said air inlet aperture, said casing being provided with a curved shield projecting above the end of said casing containing the air inlet, and provided with a fulcrum notch adjacent to its upper end, a thin horizontally disposed lever having a portion between its ends engaging said notch, and disposed substantially radially with respect to said shield, a valve closing spring located within said shield and connected to said valve and to the inner end of said lever, a fusible link connected to the outer end of said lever and to a part fixed with respect to said shield, and a spring within said casing of less strength than the valve closing spring connected at one end with said valve and at the other end to a part fixed with respect to the casing, and held under sufficient tension by the valve closing spring to insure the unseating of the valve when the valve closing spring is released by the fusing of the fusible link.

HARRY E. LAKE.