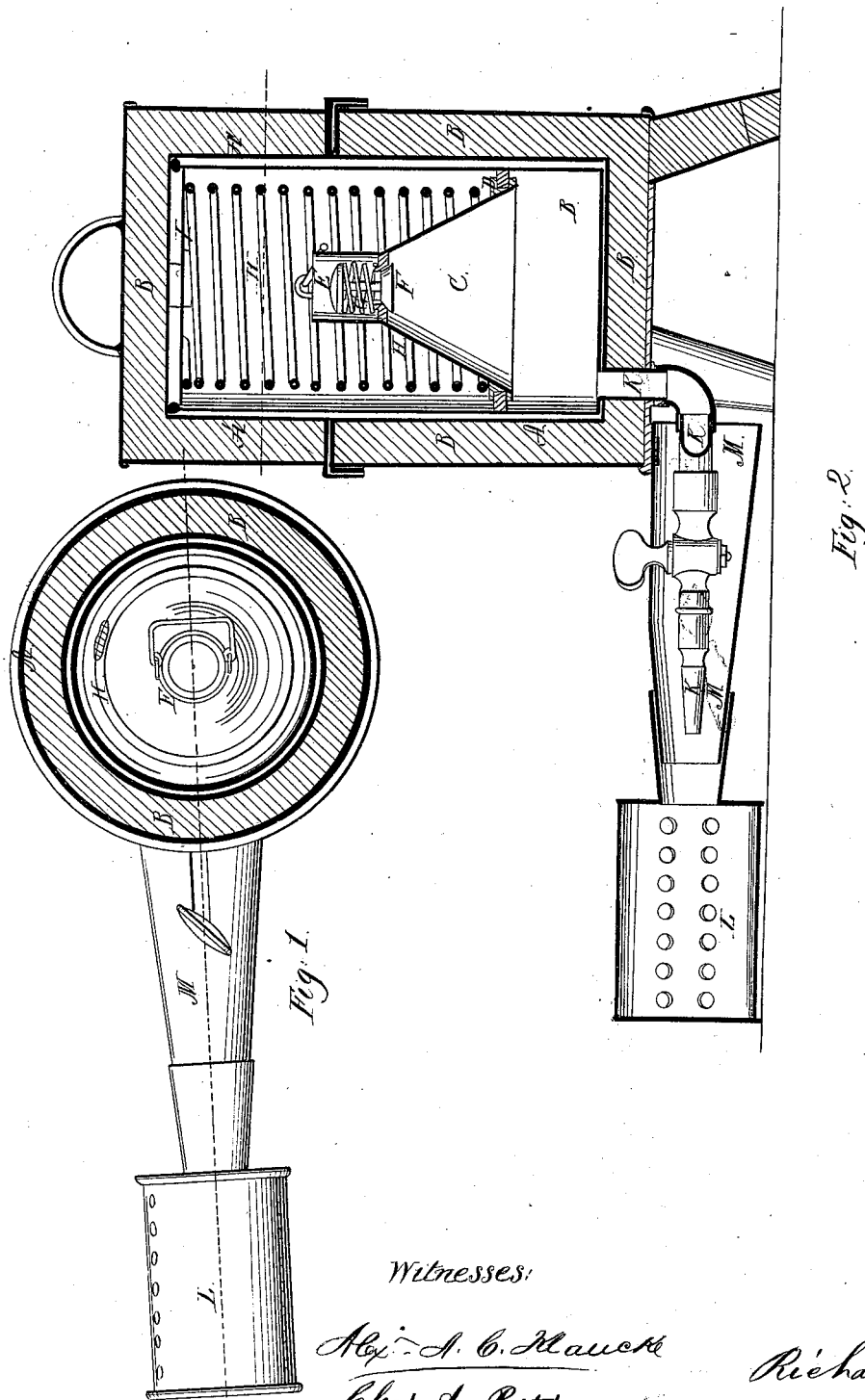


R. Veilding,
Burning Hydrocarbon.
N^o 54,243. Patented Apr. 24, 1866.



Witnesses:

Atty. A. C. Hancock
Chas. A. Pettit

Inventor:

Richard Veilding

UNITED STATES PATENT OFFICE.

RICHARD YEILDING, OF YPSILANTI, MICHIGAN, ASSIGNOR TO HIMSELF
AND HENRY GAGE.

IMPROVED APPARATUS FOR BURNING TAR.

Specification forming part of Letters Patent No. 54,243, dated April 24, 1866.

To all whom it may concern:

Be it known that I, RICHARD YEILDING, of Ypsilanti, in the county of Washtenaw and State of Michigan, have made a new and Improved Apparatus for Burning Tar, or Tar, Pitch, or Rosin Compounded with Oil, for Fuel; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a plan or top view of my apparatus with the upper part removed. Fig: 2 is a vertical section on the red line of Fig. 1.

The nature of my invention consists in so constructing a reservoir for the reception of the material to be used as fuel, whether it be tar alone, or tar or pitch or rosin, or any or all of them compounded and mixed with oil, and combining such with a retort or burner, or using it without, that the fuel, after having been fed into the reservoir, shall flow either by its gravity or be forced by mechanical means to the retort or burner to be ignited, and perform its functions for heating or cooking, or to be combined with other fuel—as wood or coal or coke—without using the retort, while, at the same time, the charge of fuel in the reservoir may be renewed whenever necessary without disturbing or even approaching the fire.

A is a vessel, composed of two cylinders, one within the other, having the space between them filled with some material, B, that is a non-conductor of heat. A cover, A', is constructed in the same manner, and fits closely over the case A. Within the case A is the reservoir B', a little less in diameter than the case A, so that a narrow space is left all round between the two. This should be truly cylindrical and have its inner surface smooth and unblemished.

A hollow cone, C, is allowed to work freely up and down within the reservoir, while at the same time it is kept tight by the packing D. To the top of this cone is a tube, E, opening into it, through which the fuel is to be fed, and the opening into the cone is closed by means of a valve, F, having its seat upward, and kept in its position by means of a spiral spring, G, around its stem. The cone C is kept down upon the material that has been put into the reservoir B' through the opening

E, by means of a spiral spring, H, pressing upon the flange that carries the packing around the bottom of the cone, while such spring is confined at the top of the reservoir by a bar, I, across the top of the reservoir. The spring H may, if expedient, be dispensed with and the cone kept down by a weight.

The fuel is kept from rising through the opening E, under pressure, by the valve F, which is tightly closed as the pressure of the fuel against it increases.

From the bottom of the reservoir, and passing through the non-conducting medium between the two thicknesses of the case A to the outside, is a tube or tubes, K, (I do not limit myself to any number,) through which the fuel must flow or be conducted to the retort or the place where it is to be burned. The tube K is furnished with a stop-cock to regulate the flow of fuel, while at the same time the orifice at the nozzle is of a size to allow the fuel to be forced in a jet as far as the retort L, with which the tube K communicates by means of the incasing pipe or sleeve M, open at the end farthest from the retort to the external air. This is for the purpose of allowing a sufficient draft of air to be supplied to the burning fuel in the retort. The retort L is made of copper, as a metal best calculated to retain heat, and is perforated with holes on its opposite sides, through which the flame from the fuel is aided to escape in jets by the rushing in of the air from the open end of the sleeve M.

When my apparatus is to be used the retort is placed within a stove or furnace and the reservoir brought in connection with it by means of the sleeve M. The top A' of the reservoir is then lifted off, the bar I removed, the spring H lifted out, and the cone C drawn up near the top of the reservoir B by the handle. The valve F is then opened by pressing down upon its stem and the space in the reservoir below the cone filled with fuel, the cock in the tube K being stopped. The valve F closes of itself on being relieved from pressure, the spring H is replaced—of course compressed—it is held down by the bar I across it, the top of the case A' is put on, fire is applied in the retort, the cock is turned, and a jet of fuel is sent into the retort to be ignited, combustion being aided by the supply of external air through the sleeve M.

It may sometimes be expedient to use the reservoir and tube K without the retort in a stove that burns wood or coal or coke. In such case it is only necessary to introduce the nozzle of the tube K directly into the fire-chamber or furnace and allow the fuel that flows from the reservoir to be ejected over the wood or other fuel burning in the stove.

In charging the reservoir it is not always necessary to remove the spring H; but the fuel may be fed to the reservoir through the cone by means of a pipe reaching to the valve and pressing it open, while at the same time the cone can be drawn up toward the top of the reservoir as this becomes filled.

Having thus fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. A reservoir for fuel composed of tar, pitch, or rosin mixed with oil, or tar alone, with its packed cone, having a feeding-valve, F, contained in a chamber or case, A, of non-conductive material, and having a tube or tubes furnished with regulating stop-cocks for the purpose of ejecting the fuel in jets to be ignited, as hereinbefore set forth.

2. The reservoir B, with its component parts, and the tube or tubes K, in combination with the retort L and the sleeve M, for the purpose and substantially in the manner set forth.

RICHARD YEILDING.

Witnesses:

ALEX. A. C. KLAUCKE,
CHAS. A. PETTIT.