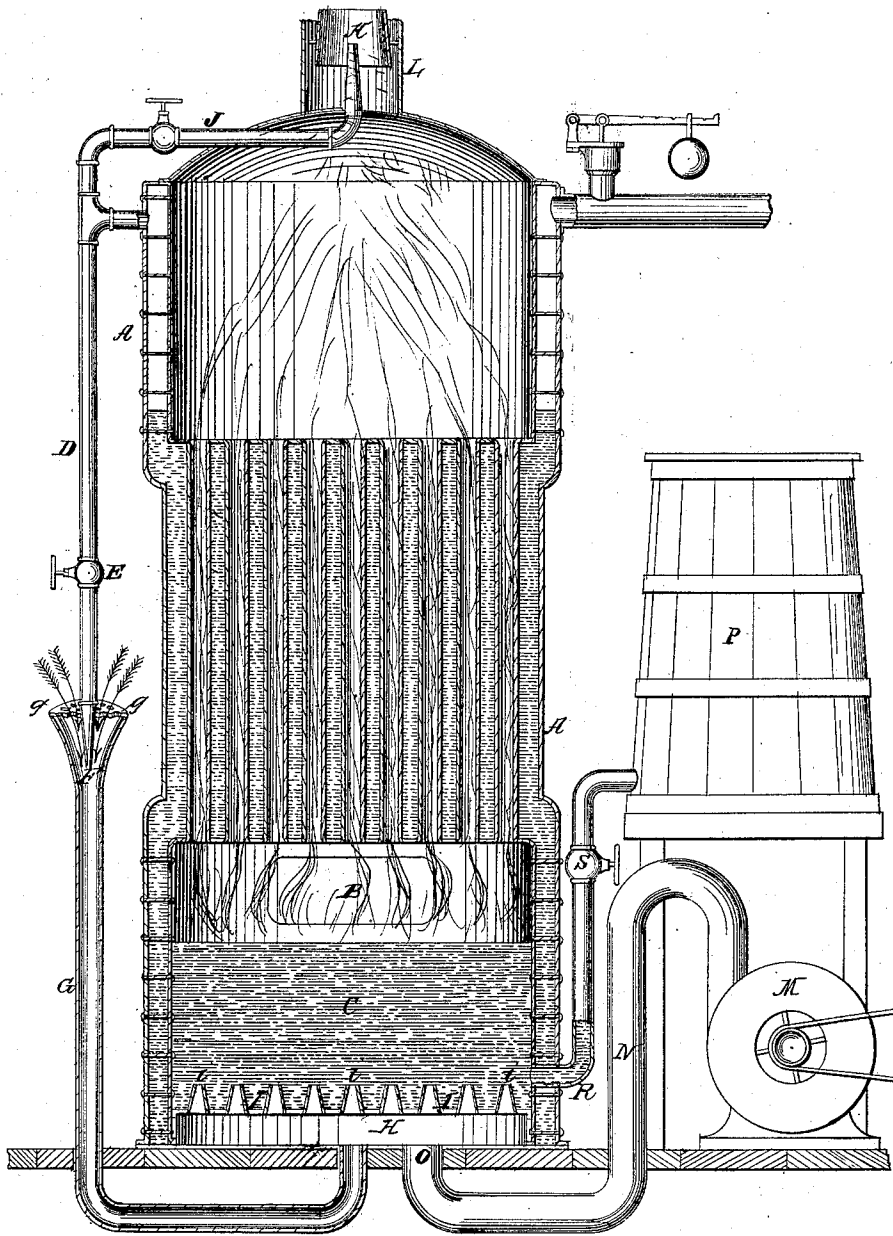


*Post & Garrard,
Burning Hydrocarbon.*

N^o 70,117.

Patented Oct. 22, 1867.



*Witnesses:
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United States Patent Office.

H. A. V. POST AND JEPHTHA GARRARD, OF CINCINNATI, OHIO,

Letters Patent No. 70,117, dated October 22, 1867.

APPARATUS FOR BURNING HYDROCARBONS.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that we, H. A. V. POST and JEPHTHA GARRARD, both of Cincinnati, Hamilton county, Ohio, have invented a new and useful Method of Burning Oils; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification.

This invention relates to a method of burning petroleum and other oils, which insure very thorough combustion, and consequently lessens the smoke, and burns the fuel to best advantage, consuming a large proportion of the combustible matter with clear, hot flame.

The essential feature of our invention consists in supplying all or part of the air for combustion of the oil by blowing the said air through the body of the liquid into a combustion-chamber. This chamber may be arranged immediately above the surface of the oil, and beneath the boiler, or other object to be heated, and provided with a small chimney or exit-flue for the smoke.

These objects are accomplished by carrying on the combustion by forcing air, or air mingled with steam, through the body of the oil. This can be accomplished by means of a blower, or by forming a partial vacuum inside the furnace or smoke-stack, so as to draw or drive the air through the oil by the pressure of the atmosphere. To accomplish this purpose we employ any mechanical arrangement that we deem applicable to the particular object in view; for example, where generation of steam is desired, the parts may be arranged as represented. The accompanying drawing shows by vertical section one arrangement by which this may be performed.

A is a steam-boiler, B a furnace, and C an oil-receptacle. D is a steam pipe, having a valve-cock, E, and nozzle F. The said nozzle discharges into a combined steam and air pipe, G, and thence into the chamber H beneath the oil-receptacle, and from which it is separated by a perforated floor, I, whose apertures may be provided with nozzles *i* for more effective distribution of the air. The pipe G is provided with apertures *g g*, for the admission of air, and one or more of these apertures may be closed when it is desired to restrict the admission of air. J is a steam pipe, whose nozzle K discharges steam into the chimney L, and by increasing the draught causes a partial vacuum in the furnace, so as to facilitate the ascent of air, or air and steam combined, through the body of the oil, either in conjunction with a blower, or without any outward pressure except that of the atmosphere. M is a blower, having a pipe, N, and a nozzle, O, discharging air into the chamber H, and through the body of the oil in the receptacle C. The pipe N may be furnished with a check-valve to prevent the backward flow of oil when the blast of air is not on. P is an elevated tank or cistern, from which the petroleum or other oil flows into the receptacle C through the pipe R, and the supply of oil is regulated by the cock S.

The temperature of the air introduced for the above purpose should be such as to most readily effect the desired results, and will vary with oils of different compositions and specific gravities.

The perforated floor may be replaced by a perforated coil or worm, and the boiler by an oven, or by a room-warming pipe, or chest, or otherwise.

If the oil be violently agitated by mechanical stirring or otherwise, so as to create a spray above its surface, an air pipe may be so introduced as to bring air into contact with such spray, and thus produce that union of air with the fine particles of oil which is characteristic of our method of facilitating combustion.

We claim herein as new, and of our invention—

The arrangement of a receptacle, C, for hydrocarbon or other oils, or other liquid fuel below a furnace or combustion-chamber, B, in connection with a pipe or pipes, through which air or air and steam are forced through apertures or nozzles situated below the surface of the liquid fuel, and thence through the body of the liquid fuel, substantially as and for the purpose set forth.

In testimony of which invention we hereunto set our hands.

H. A. V. POST,
JEPHTHA GARRARD.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.