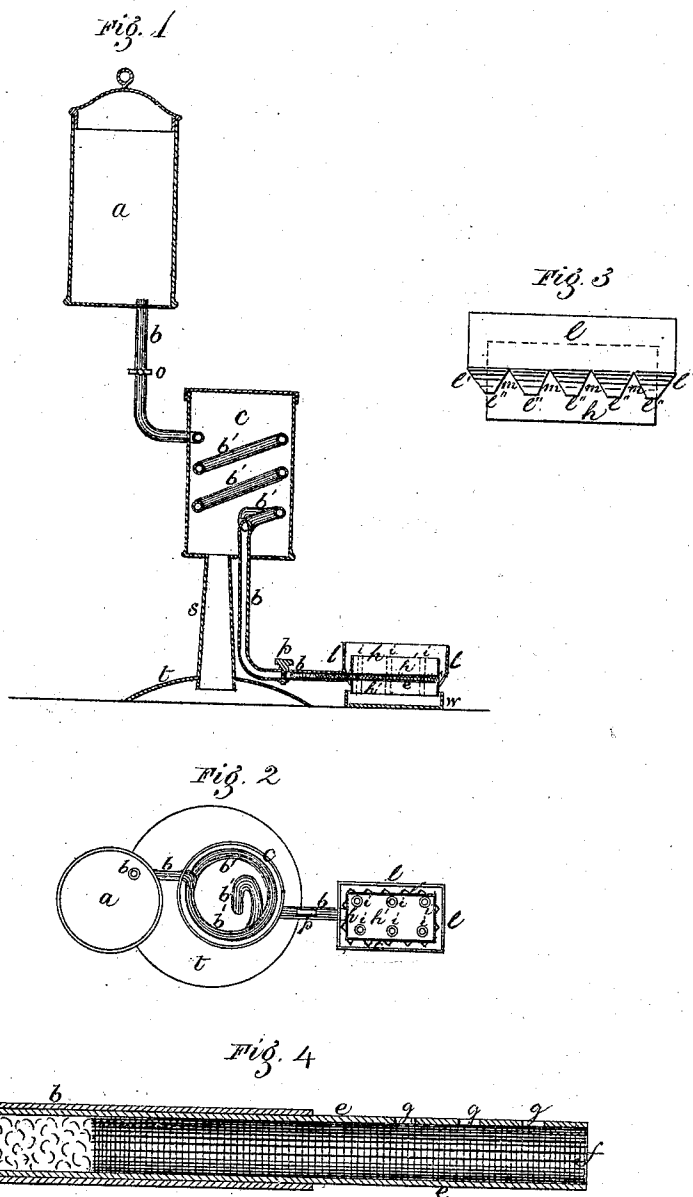


E. F. ROGERS.

Apparatus for Burning Hydrocarbons.

No. 135,011.

Patented Jan. 21, 1873.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD F. ROGERS, OF CHELSEA, ASSIGNOR TO HIMSELF, LUTHER L. HOLDEN, AND STOUGHTON B. HOLDEN, OF WOBURN, MASS.

IMPROVEMENT IN APPARATUS FOR BURNING HYDROCARBONS.

Specification forming part of Letters Patent No. 135,011, dated January 21, 1873.

To all whom it may concern:

Be it known that I, EDWARD F. ROGERS, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Heat Generator or Feeder, of which the following is a specification:

Figure 1 of the accompanying drawing is a central vertical longitudinal section. Fig. 2 is a top view, and Figs. 3 and 4 are parts in detail of my improved heat-generator.

The present invention relates to certain new and useful improvements in apparatus for generating heat from crude petroleum, or its equivalent; and has for its principal object the economizing of time and labor required in making and attending ordinary fires, and the expense occasioned by the use of ordinary fuel. My improvements consist mainly in an apparatus for generating heat from crude petroleum, or its equivalent, arranged and operated, as will be more fully explained in due course, so that petroleum, or its equivalent, introduced into a proper reservoir, flows through a pipe passing in the shape of a coil through a suitable receptacle containing water, and thence by a tube provided with a wire or other netting and proper outlets, through a preparation of mineral substance or compound supplied with proper ducts or pipes, through which air admitted from below, together with air passing through perforations formed by a jacket surrounding the mineral substance or compound, supplies the necessary oxygen to the flame emitted from the petroleum or other material permeating through the compound mineral substance, &c., thus furnishing a complete combustion and generating an intense heat, which may be readily regulated, and producing an apparatus that may be applied to any ordinary stove or other heating or cooking device, that is easily taken care of, and in which the flame is ignited and regulated without the trouble, annoyance, and loss of time required in making and keeping a fire from wood or coal, &c.

In the drawing, *a* is a reservoir in which crude petroleum, or its equivalent, is introduced, and from which it is conveyed by a pipe, *b*, that passes in the form of a coil, *b'*, through a receptacle, *c*, supplied with water or other suitable substance, and thence down-

ward, being curved at the bottom and extended horizontally to receive or connect with the end of a supply-pipe, *e*, within which is a wire or other suitable netting, *f*, and on the top of which are formed proper apertures *g*, as shown in Fig. 4. The pipe *e* extends and conveys the petroleum, &c., through a generator composed of a compound mineral substance, *h*, against which impinge the pointed portions *h'* of a serrated inclined bottom, *l*, of a jacket, *l*, leaving a space between, through which oxygen passing through the interstices *m'* of the serrations *l'* is conveyed to the flame emanating from the petroleum percolating through the mineral substance *h*, through which are vertical ducts or pipes *i*, through which air passes up from below and with the air entering from the jacket *l* supplies the oxygen necessary for the production of the heat arising from the ignition of the gases issuing from the petroleum, &c. The pipe *b*, near its junction with the bottom of the reservoir *a*, is supplied with a suitable faucet, *o*, for regulating the flow of the petroleum, &c., into the coil *b'*, and the pipe *e* is furnished with a faucet, *p*, for admitting the petroleum to the generator *h* and shutting off and regulating the heat. Below the generator *h* is placed a pan, *w*, containing water in order that any oil leaking from the generator may fall on the water, where, becoming ignited, its flame passes through the air-ducts and combines with the flame issuing from the generator. The supply-pipe *e* is provided with the netting *f* to prevent any explosion of the pipe by the flames going back into it, and may also be provided with a sponge, *v*, or other porous substance, so as to prevent too great or sudden flow of oil when light oils are used. The exterior perforations of the jacket *l* may be formed at intervals, either by the serrated bottom or otherwise; or the jacket and generator may be arranged so as to form a continuous perforation, according as it is desired to use the heat. The water or other receptacle *c* may be supported by a stem, *s*, connected with a suitable bottom, *t*, or may, with the other portions of the apparatus, be supported in or connected in any proper way with any description of stove, furnace, range, or other heating or cooking apparatus, thus enabling my improved generator to be introduced into or con-

nected with old stoves, &c., with but little change to their construction, and with but little expense.

Having thus fully described my improvements, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

The combination of the oil-reservoir *a*, pipes *b'* *e*, water-receptacle *c*, generator *h'* having the air-ducts *i*, and jacket *l* having the in-

clined bottom *l'* and apertures *m* therein, all arranged as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD F. ROGERS.

Witnesses:

CARROLL D. WRIGHT,
SAML. M. BARTON.