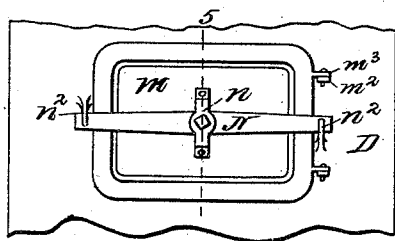
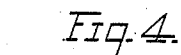
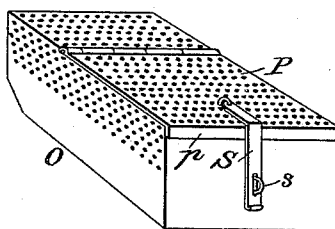
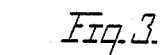
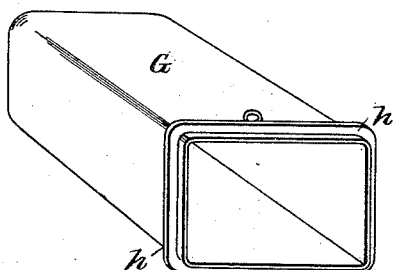
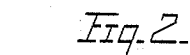


F. JARRETT & L. PEYTON.
HEATING AND GAS GENERATING STOVE.

Patented May 10, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

FLOYD JARRETT, OF SOCORRO, TERRITORY OF NEW MEXICO, AND LILBURN PEYTON, OF RICH HILL, MISSOURI.

HEATING AND GAS-GENERATING STOVE.

SPECIFICATION forming part of Letters Patent No. 474,742, dated May 10, 1892.

Application filed December 12, 1891. Serial No. 414,842. (No model.)

To all whom it may concern:

Be it known that we, FLOYD JARRETT, a resident of Socorro, Territory of New Mexico, and LILBURN PEYTON, a resident of Rich Hill, Missouri, both citizens of the United States, have invented certain new and useful Improvements in Heating and Gas-Generating Stoves, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to that class of stoves or portable furnaces having a gas-generating retort located within the fire-chamber of said stove, said invention consisting of certain improvements hereinafter set forth for constructing, charging, or feeding said retort, for closing the mouth of the latter, and for carrying off the gases.

In the accompanying drawings, Figure 1 is a central vertical section taken through the furnace, retort, and feeding-cartridge, showing the preferred relative position of said parts when in operation. Fig. 2 is a perspective view of the retort. Fig. 3 is a perspective view of the feeding-cartridge removed from the retort, showing our preferred mode of constructing said cartridge. Fig. 4 is an end elevation, with the outer door removed, of the inner door for closing the mouth of the retort and the preferred means for locking said door to position thereon. Fig. 5 is a section taken on the dotted line 5 5 of Fig. 4, on an enlarged scale. Fig. 6 is a horizontal section through one of the pivotal lugs m^3 of the door M and its adjacent lug m^2 , showing the preferred mode of constructing said lugs to admit of a lateral movement to said door in closing the mouth of the retort.

The body of the stove or furnace proper may be constructed and put together in any desired manner, the mode shown consisting of a bottom plate A, side plates B, rear end plate C, and a front end plate D, the whole having a cover E, with a suitable flue-opening e therein, said parts being secured together in the usual manner of constructing stoves. To the front end plate are hinged the usual doors d and d^2 for inserting fuel into the grate F and for removing the ashes and cinders from beneath the latter, said grate resting upon suit-

able lugs cast with the frame of the furnace and provided with suitable fire-proof linings f .

The gas-generating retort is made of an outer or fire shell and an inside shell or cartridge O. The outer shell G is secured within the fire-chamber of the furnace over the grate F, and in such manner that the flames from the fuel in the grate will encircle said retort, excepting at its front or mouth portion. The retort is preferably provided with an outer rib h , which engages on the outside of the front of the stove, the front end of said retort projecting through an opening therein and resting on the body of the furnace at the lower portion of said opening, as shown. The rear portion of the retort is preferably provided with a supporting-lug h^2 , which rests upon a suitable projection h^3 , cast with the rear end plate C. The mouth of the retort is closed in any suitable manner, that shown being preferred, which consists of a door M, hinged to the front plate D of the stove or furnace, as shown in Fig. 4, the inner face of said door projecting inward, as shown at m , Fig. 1, to fit the mouth of said retort. It is preferred that the inner face of the door be provided with a suitable packing of asbestos (not shown) at that point against which the outer face of the retort will impinge when the door is closed, in order that said retort may be rendered gas-proof. This door M may be locked to place against the mouth of the retort in any preferred operative manner, that shown being considered the more effectual, which consists of a lever N, fulcrumed centrally between the door M and bracket n , the free ends of said lever being adapted to rotate and lock at the rear of the hooked lugs n^2 , cast with the front wall, as shown.

The coal is fed or inserted within the retort G by means of a detachable shell or cartridge O. This shell at its bottom and sides fits against the outer shell and is made of metal, so as to readily transmit the heat by radiation from the outer shell to the charge in the cartridge. This cartridge O consists of a closed receptacle, with small perforations on the top section thereof to permit of the escape of gas into the retort. The preferred construction

of cartridge is that shown, having a body portion with a lid P hinged thereto, the outer end portion of said lid having a flange *p*, which overlaps the front end of the body portion, in order to retain said lid firmly to place as the cartridge is fed into or removed from the retort. To the front end of the cartridge is secured a staple *s*, over which the hasp S engages, the latter at its opposite end being loosely connected to the lid P, as shown.

To the front of the stove or furnace is hinged a door T, which, when closed, fits over the door M, thus permitting an air-space between said doors to protect the outer one. At the bottom of door T is provided a slight air-space *t*, with suitable perforations *t*² through the body of the stove near the inner top portion of said door, the object of said air-space and perforations being to carry off any gas which might for any cause escape from the retort, and thus prevent an escape of gas into the room in which the stove is located.

The retort is provided with a suitable pipe W, tapping through the outer shell G for carrying off, purifying, and storing the gas, for which latter purpose any suitable gasometer may be employed.

The operation of our improved gas-generating device is as follows: The coal is put into the cartridge O, after which the lid P is secured and locked to place by means of hasp S. The cartridge thus loaded is inserted within the retort G, after which the door M is closed and locked by means of lever N, after which the outer door T is closed over door M. The retort is now ready to generate gas, which is accomplished by means of heat applied to said retort, which heat may be generated by any suitable fuel. After the gas has been extracted from the coal within the cartridge the former passes off into the retort, and from thence is carried off through pipe W to be purified and stored ready for use. To remove the coke from the retort, the doors T and M are opened, after which the operator takes a hooked rod, (not shown,) the hooked portion of which is inserted within the staples of the cartridge, and the latter is then withdrawn from the retort and a freshly-loaded cartridge inserted therein. One or more cartridges may be kept loaded ready for insertion within the stationary retort, and, if desired, the coke may be burned in the grate when removed from the retort, thus economizing fuel. It is preferred to connect a pipe W², leading from pipe W to the flue Y, said pipe W² having therein a valve *w*, the latter being closed at all times, except when desired to let the gas pass off through said flue. This is desirable when a fire is first started within the grate, as the gas first generated is not of a desirable quality for illuminating purposes. It is also desirable at certain times to permit the gas to escape from the retort before opening the mouth of the latter, in which case the valve *w* is opened.

In Fig. 5 we have shown the preferred mode of securing the locking-lever N within the bracket *n*, which consists of a screw-threaded bolt *n*³, passed through said bracket and lever and engaging with a nut *n*⁴, the latter resting within a countersunk portion of said lever in a non-rotatable position. After the lever has engaged the lugs *n*² on the casing the operator takes a wrench and turns the bolt *n*³ in the proper direction, which causes the nut *n*⁴ to travel outward thereon, and with it said lever, and in this manner the door M is more securely locked to place over the mouth of the retort. In locking this door M to place over the mouth of the retort it has been found advisable to provide for a slight lateral movement of the former, which we accomplish by means of an enlarged or reamed portion *m*⁴, formed in the lugs *m*² *m*³, as shown in Fig. 6. This construction will admit of lug *m*³ moving slightly on the stationary lug *m*², and in this manner the door M is readily accommodated to the mouth of the retort.

The advantages of our invention are apparent, the same being simple of construction, reliable in operation, and cheap of manufacture. The closed cartridge for charging the fuel into the retort and the facility for removing the burned coke therefrom is an especially valuable feature of our invention. The cartridge being closed, no cinders or dirt can escape therefrom during the removal from the retort. The cartridge is readily loaded and inserted within the retort. The means afforded for closing the mouth of the retort and also the means afforded for carrying off any escaping gas are also valuable features of our invention.

It will be observed that the cartridge O is perforated only upon its top section and that it is shaped to fit the retort and rest snugly against the sides and bottom thereof. This is important, as the coal in the cartridge has to be highly heated. It is essential that the sides and bottom of the cartridge be in close contact with the sides and bottom of the retort, so that the heat will be readily radiated through the cartridge-shell to the charge therein. If air passages or spaces were provided around the cartridge and retort, it would be difficult to heat the charge to the proper degree. In this construction the cartridge is, in fact, a part of the retort, and it will also be observed that there is a chamber between the top of the cartridge and the top of the retort, where the gases may be momentarily held in suspension. Another advantage is derived in the construction of the outer and inner retort or cartridge-shell. The latter may be quickly removed with the contained charge of coke, which can be dumped hot into the fire-chamber of the furnace. Another charge, which has been previously loaded, is inserted into the retort, which is quickly closed. Thus the retort can be readily charged, the coke used hot, so that the retort will furnish enough

heat to generate all the gas if good coal is employed.

We are aware that it is not new, broadly, to provide a heating stove or furnace with a gas-generating retort; but

What we claim as new, and desire to secure by Letters Patent, is—

In a gas-generator, the combination, with a stove-frame, of the retort-shell G, the cartridge O, fitted to and located therein, the door M, hinged to the stove-frame and locked against

the mouth of the retort, and the outer door T, hinged away from the inner door and provided with intervening air-spaces between said doors, with perforations for allowing air circulation, substantially as specified.

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