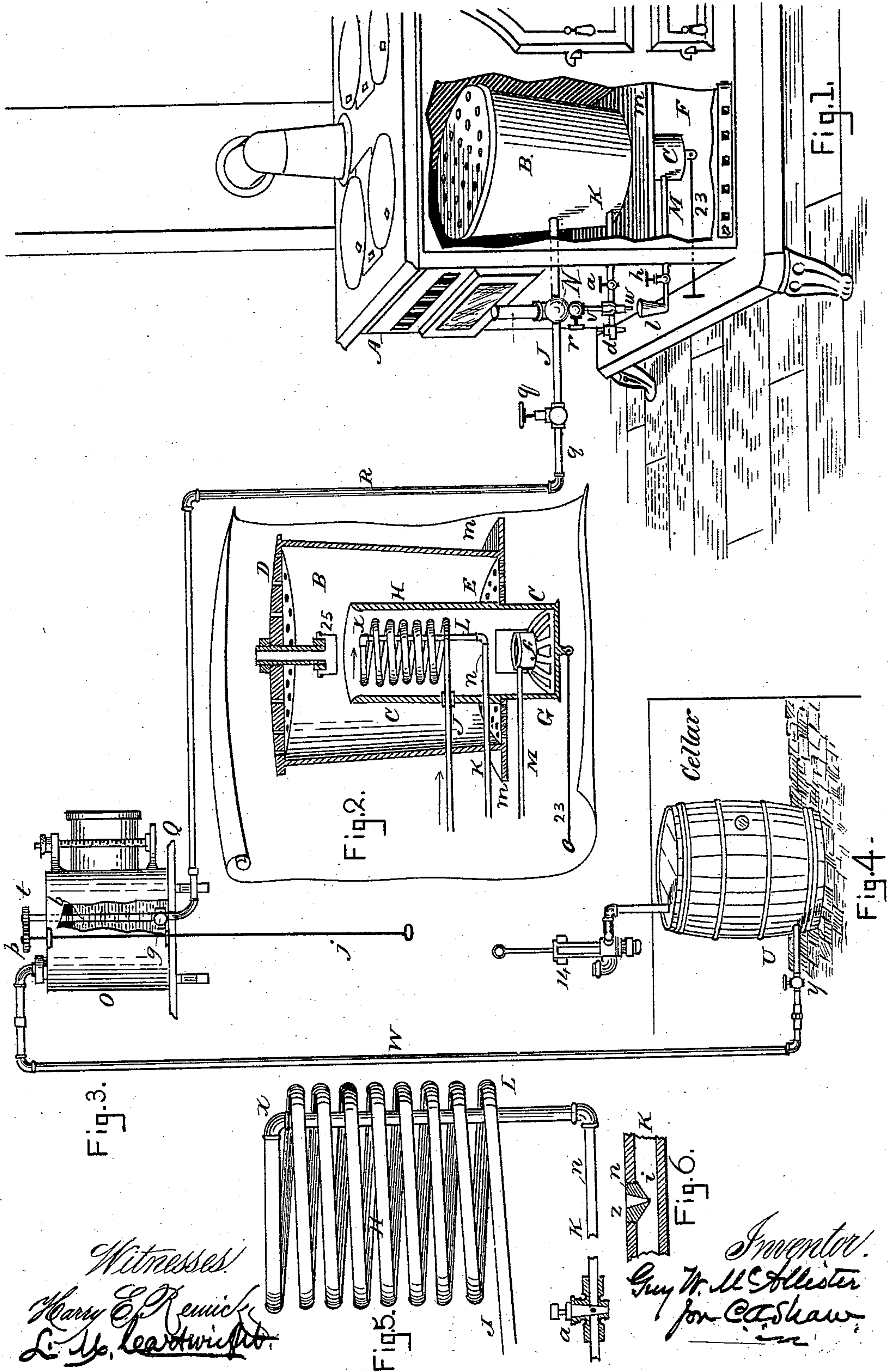


(No Model.)

G. W. McALLISTER.  
STOVE.

No. 287,453.

Patented Oct. 30, 1883.



Witnesses:  
Harry E. Kenick  
L. H. Leavitt

Inventor:  
Guy W. McAllister  
per C. A. Shaw



# UNITED STATES PATENT OFFICE.

GUY W. McALLISTER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF,  
EDWARD L. YORK, AND ALDIS L. WAITE, OF SAME PLACE.

## STOVE.

SPECIFICATION forming part of Letters Patent No. 287,453, dated October 30, 1883.

Application filed May 5, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GUY W. McALLISTER, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Stoves, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view of my improved stove, a portion of one of its sides being represented as removed to show the mixer and combustion-chamber. Fig. 2 is a vertical longitudinal section of the mixer and combustion-chamber; Fig. 3, a view of the fuel-reservoir; Fig. 4, a view of the supply-tank and air-pump; Fig. 5, a side elevation of the coil; and Fig. 6, a vertical transverse section, showing the burner.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of stoves which are designed to use liquid fuel or burn the hydrocarbon oils; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a simpler, cheaper, and more effective device of this character is produced than has heretofore been employed.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the body of the stove, B the mixer, and C the combustion-chamber. The mixer is preferably cylindrical in form, having slightly-flaring sides, and is provided with a perforated top, D, and foraminous bottom E, being supported in the body of the stove on the platform *m*, so as to leave an air-space, F, beneath the same on all sides. The combustion-chamber, which is also preferably cylindrical in form and has an open top, is centrally disposed within the mixer, extending downwardly through the bottom of the same, as best seen in Fig. 2, and being provided with an air-register, G, in its

bottom. A supply or induction pipe, J, passes horizontally through the walls of the stove, mixer, and combustion-chamber, as shown in Fig. 2, being coiled upwardly to form the helix H within said chamber, and terminating at *x*.

Arranged in parallelism with the pipe J, but below the same and near the bottom of the mixer B, there is an eduction-pipe, K, provided with the stop-cocks *a* and *d* at its outer end, its inner end being connected with the pipe J by the pipe L, which is arranged vertically within the coils of the helix H.

Disposed in the upper part of the pipe K, and coincident with the vertical axial line of the chamber C, there is a burner, *n*. This burner consists of a plug of platinum or other substance not readily fused or injured by intense heat, and is provided with a fine orifice, *i*, at its inner end, and the flaring or tunnel-shaped mouth, *z*, as best seen in Fig. 6.

Arranged centrally beneath the helix H, above the register G, there is a small open-mouthed tank, *f*, provided with the horizontally-arranged pipe M, which extends outwardly through the walls of the stove, being provided at its outer end with the stop-cock *h* and cup *l*.

A vacuum or relief chamber, N, is attached to the pipe J, outside of the stove proper, and beneath this there is a stop-cock, *v*, connected by the short pipe *v* with a nozzle or discharge-orifice, *w*, on the pipe K.

A reservoir, O, for containing the oil for furnishing the stove, is disposed on the shelf Q, which should be located considerably above the plane of the chamber C, and is connected with the pipe J by means of the supply-pipe R, provided with the stop-cock *q*. A rod, *j*, is journaled vertically on the outer side of the reservoir, and provided at its upper end with a gear, *p*, which intermeshes with the gear *t*, disposed on the rod *b*, the rod being connected with the stop-cock *g* on the end of the pipe R, within the reservoir, and adapted to open and close the same when the rod *j* is turned to the right or left, as the case may be. The oil for supplying the reservoir is contained in the barrel or tank U, preferably disposed in a cellar below the floor on which the stove stands, the tank being connected with the



reservoir by means of the pipe W, provided with the stop-cock *y*. An air-pump, 14, is provided for forcing the oil from the barrel into the reservoir; but as the pump is of ordinary construction, and no claim is made therefor, a more particular description of the same is deemed unnecessary.

In the use of my improvement the stop-cock *q* is closed, the stop-cock *y* opened, and the reservoir O filled by pumping from the tank U, after which the cock *y* is closed. The stop-cocks *a h r* are then closed and the cup *l* filled with oil, after which the stop-cock *h* is opened, permitting the oil in the cup to flow into the tank *f*, and then again closed. A door (not shown) connecting with the air chamber or space F is then opened and the oil in the tank C lighted, after which the door is closed and the register G opened by means of the rod 23. The stop-cock *q* is next opened and oil let into the stove through the pipe J, passing upwardly through the coil or helix H, which having been previously heated by the flames from the burning oil in the tank *f*, evaporates or converts the oil into gas, which passes downwardly through the pipes L K and out of the burner *n*, where it is ignited, the flames of the burning gas passing upwardly through and around the coils of the helix and out of the open mouth or top of the combustion-chamber C into the mixer B, where it is mixed with the air, which enters through the bottom E, and the combustion is perfected, the heated air and products of combustion passing out of the mixer through the perforated cover D, where they may be utilized for heating and cooking purposes, in a manner which will be readily obvious without a more explicit description.

The burner consists of a plug adapted to fit an opening in the pipe, and having an inwardly-tapered perforation and an upper face flush with the outer surface of the pipe, where the oil in the latter will be more readily heated and prepared for burning.

It will be obvious that the fire may be readily extinguished in the stove by closing the stop-cock *q*, thereby shutting off the supply of fuel. When the stop-cock *q* has been closed and the oil between said cock and the burner *n* consumed, the stop-cocks *a h* may be opened, and the oil, if any, in the pipe K, between the burner *n* and its outer end, drawn into the cup *l*, from whence it will pass into the tank *f*, to be used for kindling the fire, as hereinbefore described.

The object of the stop-cock *r* and pipe *v* is to enable oil to be drawn directly from the pipe J and passed through the nozzle *w* into the cup *l* and tank *f*, for kindling purposes.

A deflector, 25, is arranged over the mouth of the combustion-chamber C, to deflect the burning gases and cause them to be brought more thoroughly into contact with the air in the mixer B.

The air in the chamber or space F, being heated by the oven and surrounding walls of

the stove before passing into the mixer through the bottom E, thereby assists in maintaining a high temperature in the mixer and greatly promotes the combustion of the gases.

Having thus explained my invention, what I claim is—

1. The improved stove herein described, the same consisting of the body A, provided with the mixer B, having the perforated top D and foraminous bottom E, the combustion-chamber C, having an open top and provided with the register G, the helix H, provided with the pipe J, and the pipe K, provided with the burner *n*, in combination with means for supplying the stove with oil, substantially as set forth.

2. In a stove substantially such as described, a coil or helix in which the oil is evaporated or converted into gas, a combustion-chamber in which the coil is disposed, a mixing-chamber surrounding said combustion-chamber and extending above the same, into which the burning gases are carried and mixed with air to perfect combustion, a burner through which the gases pass from the coil in the combustion-chamber, and means for supplying the combustion-chamber and mixer with air and the coil with oil, substantially as described.

3. The combination of a combustion-chamber, C, having a burner, *n*, an oil-tank, *f*, within said chamber, below said burner, provided with an induction oil-pipe, *m*, and a cup, *l*, at its outer end.

4. The combination of a combustion-chamber, oil-supply pipe J, burner-pipe K, and a supply-pipe, *m*, for the kindling device, the latter being provided with a cup, *l*, and a pipe, *v*, adapted to receive oil from said pipes J K and discharge the same into said cup, substantially as described.

5. The combination, with a combustion-chamber, of an oil-supply pipe, J, a burner-pipe, K, connected therewith, and a vertical pipe, *v*, connecting said pipes J K, and provided with a stop-cock, *r*, and a nozzle, *w*, said pipe K being provided with stop-cocks *a d*, substantially as described.

6. The combination of a combustion-chamber, C, mixing-chamber B, surrounding the upper part thereof, provided with foraminous disks D E, and a chamber, F, below said mixer, into which the lower part of said combustion-chamber extends, said combustion-chamber being provided at said extension with an oil-tank, *f*, and a register opening into the chamber F, substantially as described.

7. In a stove substantially such as described, the reservoir O, provided with the rod *j*, gears *p t*, and rod *b*, for opening and closing the stop-cock *g*, substantially as shown and described.

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Witnesses:

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