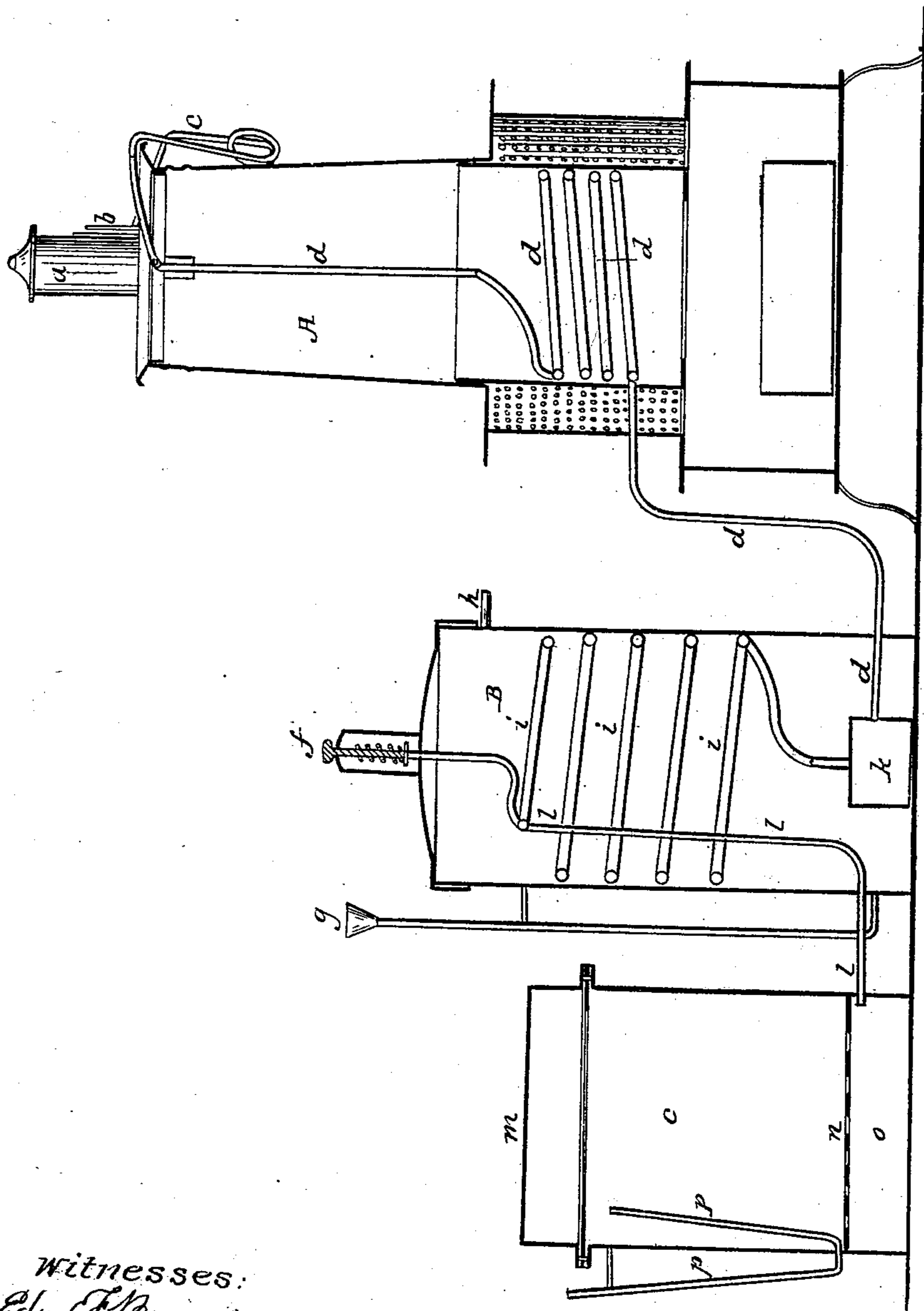


W. P. McCONNELL.
 Manufacture of Illuminating Gas.

No. 39,350.

Patented July 28, 1863.



Witnesses:
 Edw. F. Brown
 J. H. Phillips.

Inventor:
 Wm. P. McConnell

UNITED STATES PATENT OFFICE.

WILLIAM P. McCONNELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. 39,350, dated July 28, 1863.

To all whom it may concern:

Be it known that I, WM. P. McCONNELL, of the city of Washington and District of Columbia, have invented a new and Improved Mode of Making Illuminating-Gas from Petroleum, commonly called "Coal-Oil;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to letters of reference marked thereon.

The nature of my invention consists in providing an upright cylinder-stove of the ordinary kind used for heating halls, stores, or offices, marked in the drawing with letter A. At the bend, where the pipe starts from the stove, being the most convenient place, I place a can, for the purpose of holding the petroleum, where it may receive a certain degree of heat, the can marked *a*. To this can is attached a cock, *b*, having attached to it an index to show the amount of oil allowed to pass through. Attached to this cock is a siphon, marked *c*. The use of this siphon is to prevent the back action of the gas, and without it I know of no other way that I could succeed in driving the gas forward to the burners. Attached to this siphon is a pipe, *d*, entering through the top of the stove, descending straight until it comes in contact with the fire, where it takes a spiral form, lying all around as near as possible to the lining of the stove, until it comes within about three inches of the grate, where it turns out through the side of the stove, descending downward, passing through the side of cistern B, and entering box K. At K, I have a stop-cock for drawing off the condensation. Cistern B is filled with water for the purpose of cooling the gas and condensing the steam that may be mixed with the gas. *i* is a pipe entering just through the top of box K, thence taking a spiral course upward to near the top of the cistern, thence a straight course down *l* to near the bottom, where it passes out through the side of the cistern and enters near the bottom of box C. *f*, cistern B, is a safety-valve, attached by a pipe to pipe *i*. *g* is a funnel entering near the bottom of the cistern for the purpose of supplying it with cold water. *h* is an outlet-pipe for the purpose of letting off the water when the cistern is full enough. C is a box, made of iron. *m* is a lid fastened on with screws, and made gas-

tight by putting a ring of rubber or leather between the joints. O is a space at the bottom, where I use a stop-cock, for the purpose of drawing off any condensed substance that by accident may reach that place. *n* is a perforated plate to admit the gas to pass through and to prevent the cotton or other packing that may be put in at the top from coming too near the bottom. *p p* is a pipe to admit the gas to pass through onto the burners.

Box C is filled with cotton or some other suitable substance from *n* to near the top of pipe *p*, for the purpose of preventing the gas from flickering and to stop any unconsumed substance that may reach that distance.

The way in which I manufacture illuminating-gas from petroleum is, I put the petroleum after straining into the can, (letter *a*), after which I make a strong fire in the stove, so as to heat the spiral pipe very hot at the lower part or near the grate. I then let the petroleum through the siphon into pipe *d* very slowly at the commencement. After it has been made hot in the can *a*, as it passes down it goes through a destructive distillation, after which it is converted into gas, but has not the necessary illuminating quality until it passes through a greater degree of heat, which I call "reheating." What I mean by "reheating" is subjecting the gas to a higher degree of heat than is actually necessary for the destructive distillation of the same. The pipe being of sufficient length and varying in degrees of heat as it descends, it becomes unnecessary to change from one retort or pipe to another, the same pipe answering every purpose. After the destructive distillation the gas is mixed with smoke, and has not the necessary illuminating quality, but the process of reheating converts the smoke into gas and gives it that beautiful illuminating quality so essential in gas. This high degree of heat is the only purifier that is necessary, as all unconsumed particles will be stopped in either B or C. The condensed impurities pass into cistern B, and are drawn off by a stop-cock out of box K, which is filled with cotton, sawdust, sand, or some other substance which checks the force of the gas. It therefore prevents its flickering and makes a beautiful, soft, and steady light. As I depend on the expansion of the gas and manufacture it as I use it, I dispense entirely with the use of a gasometer as it passes through box C.

I have obtained a patent for reheating gas from wood; but as petroleum is a different substance, I consider it as new as the other, and a strong argument in favor of the present patent; but I am not aware that any other person ever used petroleum in the way and manner set forth in my specification and drawings.

What I claim, therefore, as my invention and discovery is—

The improvement herein described in mak-

ing illuminating-gas from petroleum or coal-oil, viz—subjecting the products of destructive distillation therefrom to a high degree of heat substantially in the manner and for the purposes herein set forth.

WM. P. McCONNELL.

Witnesses:

EDM. F. BROWN,
I. H. PHILLIPS.