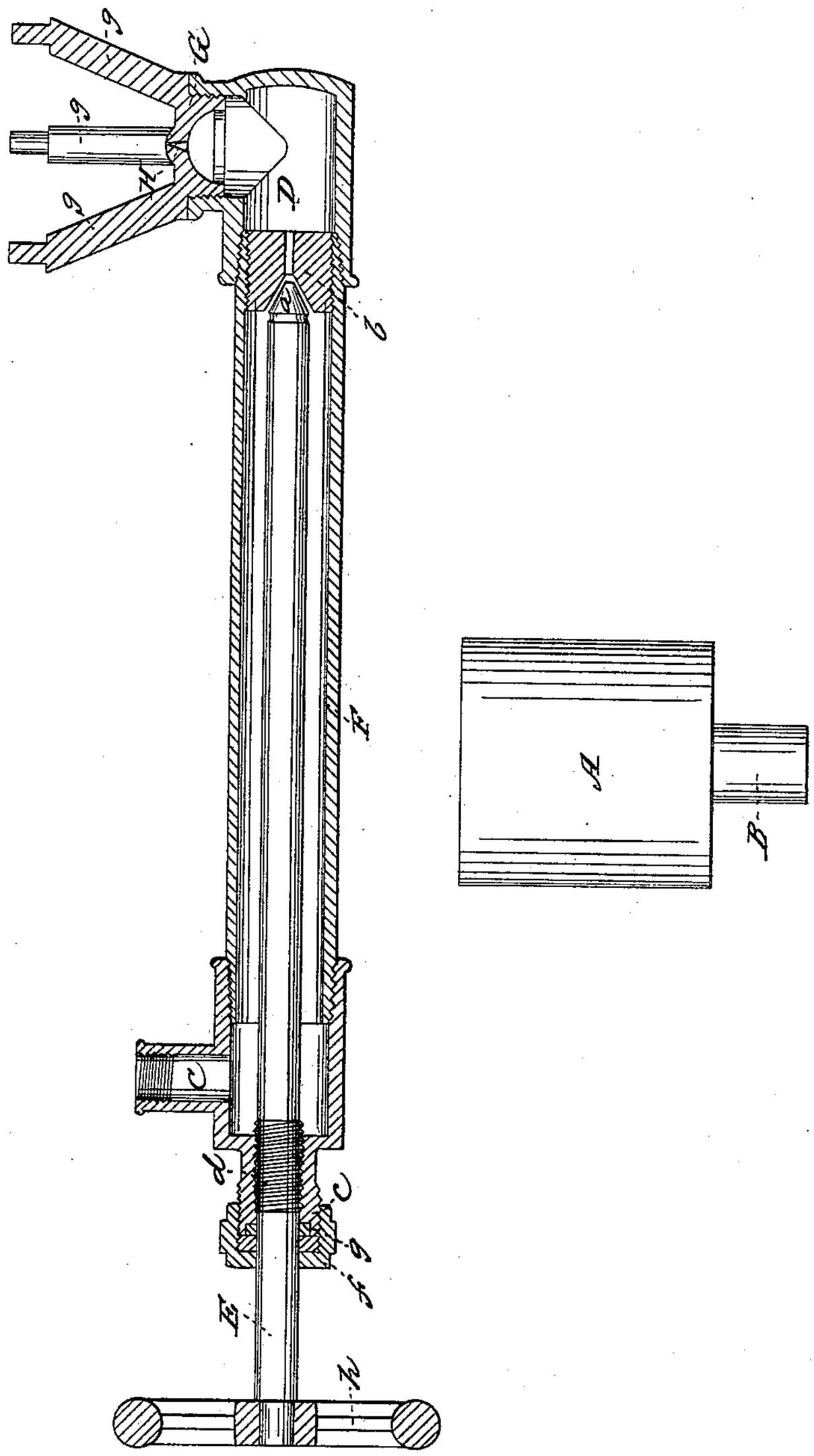
C. W. DUNCAN.

Vapor Stove.

No. 67,277. Patented July 30, 1867.



WITNESSES:

J. L. Peyton.

Theodore Lang.

INVENTOR:

Chas W. Duncan

by his Attys

Baldwin & Son

United States Patent Office.

CHARLES W. DUNCAN, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND H. S. SARONI. SAME PLACE.

Letters Patent No. 67,277, *dated July* 30, 1867; *antedated July* 26, 1867.

VAPOR-BURNER FOR HEATING.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES W. DUNCAN, of the city and county of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Vapor-Stoves, of which the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

My invention relates to that class of stoves used for cooking, heating, and other purposes, in which the vapor of petroleum, when mixed with atmospheric air, is used as heating agent, and it has particular reference to the method of regulating the supply of oil to the retort.

The device or apparatus shown in the drawings is that part of a vapor-stove which generates the vapor or gas used for heating, cooking, or other purposes.

It consists of a fluid-reservoir, A, connected by pipes B and C, with a retort or generating-chamber, D, the flow of liquid through the pipes into the retort being regulated by a suitably arranged valve-rod, C. In order to have a column of liquid which will keep the retort constantly supplied when the valve is open, the reservoir A, which holds the volatile fluid, is placed some distance above the level of the retort D, where the gas is generated. A pipe, B, commonly called the reservoir or feed pipe, extends downwards from the reservoir, and is united to the retort pipe F, which is in immediate communication with the retort. The pipe F, which is of suitable length, extends horizontally or at right angles to the feed pipe, and meets the retort D, to which it is secured either by means of a screw formed on its end, which fits a corresponding female screw in the retort, as shown in the drawing, or by solder or any other suitable means for forming a tight and secure joint. The retort D is so shaped as to form a tubular neck or elbow, and its upper end is closed by a cap, G, which is secured down into the retort, as shown in the drawing. The gas escapes in a jet from the orifice H in the cap G, and strikes against a heater-cap which is supported on the conductors *g* secured in the cap G, and extending therefrom a suitable height above the retort.

The arrangement of the apparatus thus far bears a general resemblance to that of an ordinary vapor-stove. My improvements, which are combined with this apparatus, consist in the means by which both the flow of the liquid from the reservoir L into the retort D is regulated and controlled, and the internal organization of the apparatus itself. The construction and arrangement of this valve is as follows: The end *a* of the rod E nearest the retort is made in a conical shape, so as to form a valve which fits in the valve-seat *b*, as hereinafter explained. That portion of the rod in rear of the conical end forms the valve-rod or stem, which extends back through the retort pipe F, being arranged therewith and supported by a sleeve, *c*, on the end of the pipe F, which end, for this purpose, is extended back upon the prolongation of the retort pipe. A screw-thread, *d*, is cut upon that part of the rod E supported in the sleeve *c*, which fits on a corresponding female screw, *e*, formed upon the interior of the sleeve *c*. By this means the conical valve at the end of the rod may be made to open or close the valve. A cap, *f*, which acts as a stuffing-box, is screwed over the end of the sleeve. The interior of the cap is provided with a metal washer, *q*, and cotton or hemp packing, which, when the stuffing-box is screwed down upon the sleeve, packs tightly around the valve-rod and prevents all escape of the fluid. I employ preferably, for packing, a cord, which should be wrapped tightly around the valve-rod, and covered with soap. The valve-rod extends out through this cap, and has mounted on its end a handle, *h*, by which the valve is operated. The valve-seat *b* is a cylindrical piece of metal, through which a tubular hole or passage is made to allow the oil to enter the retort D, when the valve is opened. The orifice nearest the valve is made of conical shape, so as to correspond with the conical valve. The tubular passage extends thence through the piece, and it may be turned so as to bring the orifice from which the fluid is discharged into the retort in close proximity to the bottom of the retort, as shown in the drawing, or it may be formed on the prolongation of the axis of the retort pipe. I prefer, however, the arrangement shown, as thereby the fluid is more readily and effectually vaporized. The valve-seat may be either secured to the end of the pipe F, as shown in the drawing, or it may be secured to the neck of the retort D.

When the stove is to be used, the valve is closed and the fluid-reservoir is filled with the oil. The flame of a spirit-lamp is then applied underneath the retort until it is thoroughly heated. As soon as this is done, the

valve is opened and the fluid commences to enter the retort through the opening in the valve-seat, where it becomes vaporized. The gas thus generated escapes through the orifice H in the top of the retort, and being ignited heats the heater-cap. The "heater-cap," through the intermediation of the conductors, communicates its heat to the retort, which is thus kept at the proper degree of heat to effect the vaporization of the fluid. The valve may be opened more or less, in accordance with the degree of heat required. The valve-rod, as shown in the drawing, should be of a diameter a little less than the interior diameter of the tube F, to allow a sufficient supply of the fluid to pass freely into the retort, while at the same time it has, in a degree, the effect to prevent an excess of fluid from entering the retort pipe and forcing its way into the retort. If it is desired to stop the generation of heat, the valve, by means of the valve-rod and handle, is turned until it is forced up tightly into the conical valve-seat. By this means the flow of the oil into the retort is instantly stopped, and therefore gas ceases to be generated.

I claim—

1. In apparatus for generating heat in vapor-stoves, as above described, regulating the supply of fluid to the retort or heating-chamber, in the manner and by the means hereinbefore specified, that is to say, by locating the valve which regulates the flow of the oil or other fluid at or near the point where the fluid enters the said retort, substantially as and for the purposes herein set forth.

2. In combination with the retort or heating-chamber of a vapor-stove and valve-seat, located at or near the point of junction of said retort with the pipe which connects it with the fluid reservoir, as specified, I claim the valve, constructed and arranged so as to operate on the axis of the said pipe, substantially as and for the purposes herein shown and described

In testimony whereof I have hereunto subscribed my name.

CHAS. W. DUNCAN.

Witnesses:

J. I. PEYTON,

JOHN S. HOLLINGSHEAD.