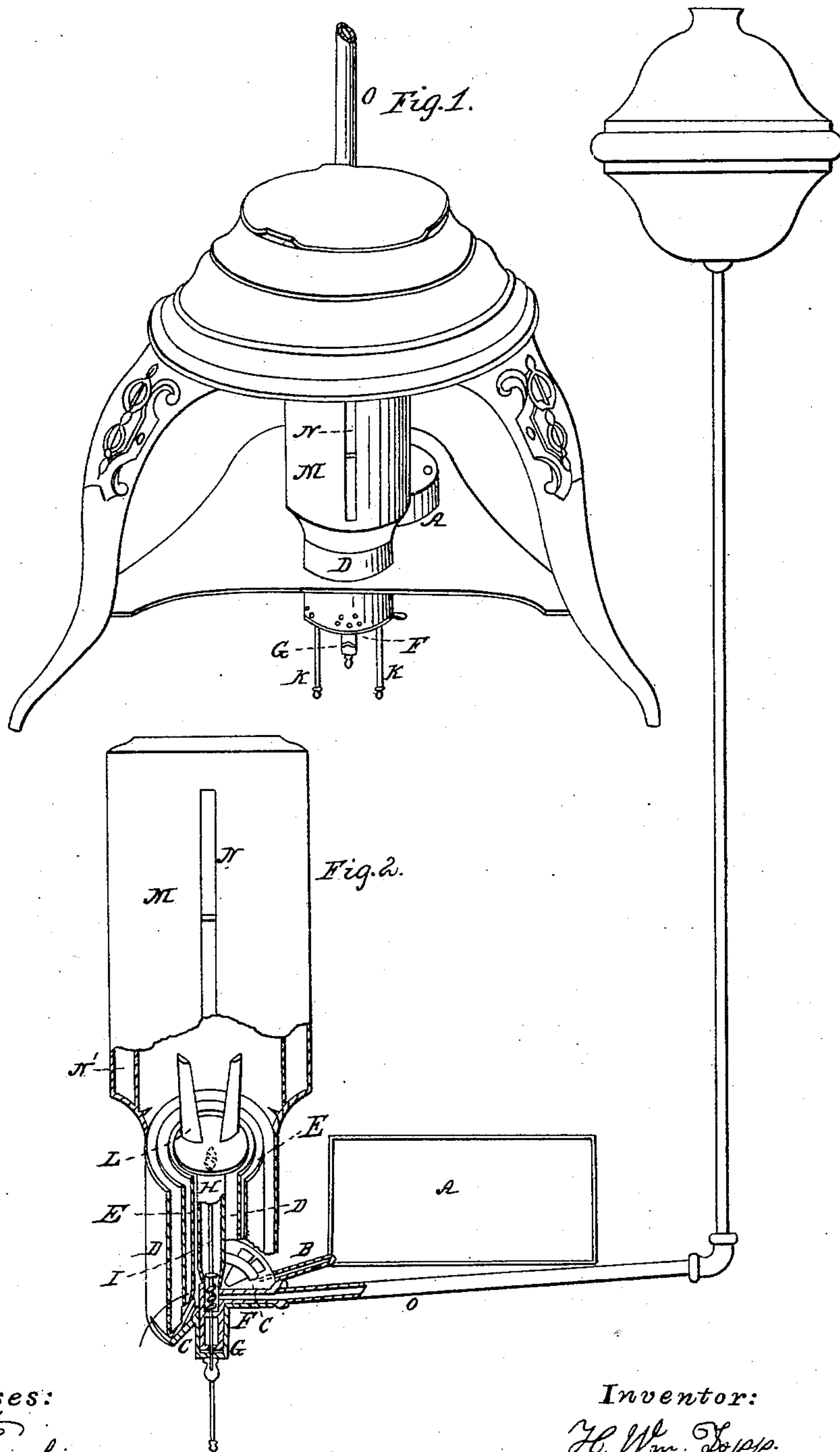


H. W. DOPP.

Wick Burner for Heating and Cooking.

No. 57,880.

Patented Sept. 11, 1866.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

H. W. DOPP, OF BUFFALO, NEW YORK.

IMPROVEMENT IN WICK-BURNERS FOR HEATING AND COOKING.

Specification forming part of Letters Patent No. 57,880, dated September 11, 1866.

To all whom it may concern:

Be it known that I, H. W. DOPP, of Buffalo, in the county of Erie, in the State of New York, have invented an Improvement in Wick-Burners for the Combustion of Inflammable Oils for Heating and Cooking Purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure I is a perspective view of the working model. Fig. II is a partial perspective view and partial sectional cut of the burner, showing its various parts and connections.

A is the oil-reservoir.

B is a small feed-pipe leading the oil from A to the wick, one end being in connection with oil-reservoir A, and the other end with the bottom of the wick-tube.

C is the bottom or base plate of air-tube D, wick-tube E, and steam-retort H. It likewise forms part of a damper for regulating the amount of atmosphere which passes through a number of holes in said plate.

D is a tube attached to C, and surrounding wick-tube E, leaving a space between the two tubes for the supply of atmosphere to the outside of the flame, obtained from a round wick in wick-tube E. It is also perforated at the lower end.

D' is a space surrounded by the wick-tube E, for the admission of atmosphere, to be supplied to the inner surface of the flame from wick in wick-tube E.

E E are two tubes, one within the other, secured to C, both together constituting the wick-tube.

F is a damper of circular form, having a number of holes through it, the same corresponding with the holes in and through the base-plate C. The hub of this damper is of cam shape, as clearly shown in Fig. I. It is attached to under side of C. It is so adjusted that a quarter-revolution either way produces the results for which it is designed; thus, first, cutting off the entire supply of atmosphere from the center of the flame; also, a large supply of atmosphere is cut off from the outside of the flame; second, for letting on a supply of superheated steam into the center of the flame, the purpose of which latter is herein-after more fully explained.

G is a cap. Its rim is of a cam shape, corresponding with the hub of F. It is secured to a small rod, I, by a nut and beneath C and F. It is connected with C in such a manner as to prevent it from turning around, and at the same time to receive an up-and-down motion whenever the damper shall be opened or shut.

H is a retort for generating superheated steam. It is secured at the lower end to C, and at the upper end to a copper generator, L. It passes through the center of the space within the round wick-tube E.

I is a small rod secured at the lower end to cap G by means of a small nut. It runs up through the center of C and a cork packing, which is secured in C; also, in and through the center of retort H up to the top of generator L, when it shuts off the supply of steam whenever the damper F is opened, and lets on a supply of steam when the damper F is turned shut. A spiral spring surrounds and acts upon this rod, by means of which it is forced shut. The action of cam F and G opens it. The upper end of this rod is of a conical, pointed, valve shape, which fits into a small orifice in and through the center of generator L, as seen in Fig. II.

K K are two small rods attached to a ring inside of wick-tube. The wick, being secured to this ring, is raised or lowered by operating these rods. They are kept from leaking or producing leakage by means of a cork packing in the bottom of wick-tube E, through which they pass.

L is the top of retort and generator, provided with a small orifice in its center, through which the superheated steam makes its exit, and also with three prongs projected upward into the center of the flame, by means of which heat is absorbed and conducted to the retort H.

M is a cylinder placed on the top of air-tube D, so that the flame obtained from the wick will pass through its center. It creates sufficient draft when the damper F is opened to supply a moderately-sized flame with the requisite amount of atmosphere, and conducts the heat obtained from said flame under the cooking-utensil placed on the top of a stove, used in conjunction with this burner. It is constructed with special reference to guard against the loss of heat from radiation, by con-

structing a double cylinder, leaving space N', which may be filled either by a non-conductor or left filled with air.

N is a window in cylinder M for ascertaining the size of flame.

O is a feed-pipe conducting water to retort H.

This apparatus is intended to burn any inflammable oil with or without the aid of steam-pressure.

Steam is to be applied when a large flame or increased heat is desired, and when applied will be operated as follows:

The damper F should be first opened. Rain-water should then be filled into the water-reservoir at an altitude of two or more feet above the orifice in the generator L. Oil is then to be filled into oil-reservoir A, which should stand on a level with the wick. Now, the cylinder M is lifted off from D, the wick raised and ignited. Cylinder M is now to be replaced. The apparatus is now burning without the aid of steam-pressure. All the atmosphere needed is supplied by the action of the chimney or cylinder M. After it has burned for a few minutes a large flame can be obtained by simply raising the wick a little higher, and then shutting the damper F, which was before opened, thus cutting off the supply of atmosphere entirely from the inside of the flame, causing it to draw together to a long cone. At the same time that the damper shuts, a current of superheated steam is turned on, which makes its exit out of the small orifice in generator L, and right into the center of the long conical

flame. By this means a flame is produced like that of an ordinary blow-pipe—larger, but of the same intensity and combustion. The necessary amount of atmosphere now passes through the perforated part of tube D, and up to the flame, where it mingles with the gases from the wick and superheated steam. To extinguish the apparatus the damper is to be shut and the wick lowered.

I claim—

1. The application of a current of steam or water vapor, in combination with a wick-burner, for burning any inflammable oil for cooking and heating purposes, substantially in the manner herein described.

2. The mode of raising and lowering the wick, as described.

3. The employment of cylinder M, in combination with a stove for cooking or heating purposes, and wick burner or burners, so constructed that the same shall serve to create a draft sufficient to supply the flame with atmosphere, and at the same time conduct the heat directly to the cooking-utensils used, as set forth.

4. Constructing the cylinder M so as to prevent the loss of heat by radiation, as shown in Fig. II, and described.

5. The window N, in combination with cylinder M.

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Witnesses:

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