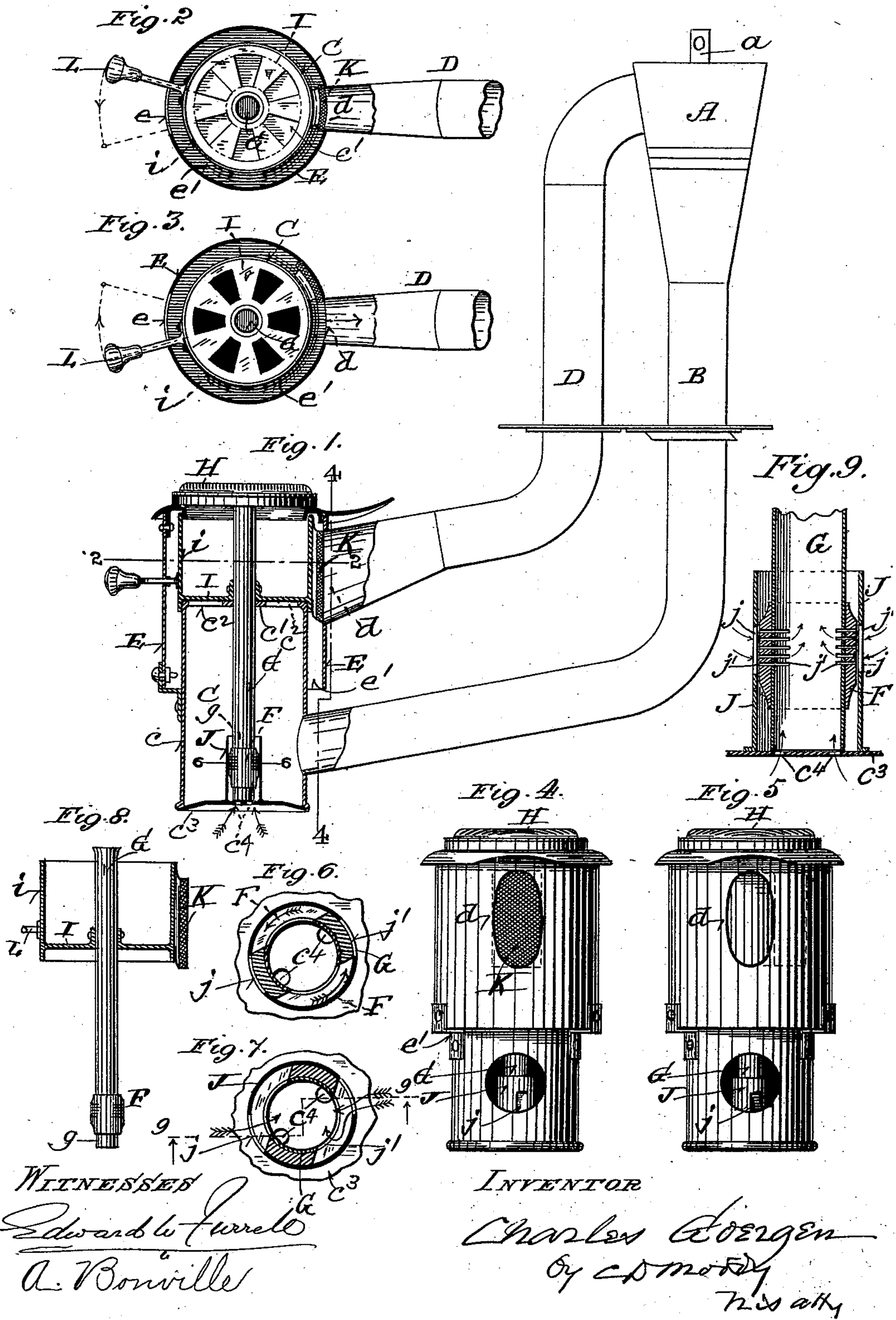


(No Model.)

C. GOERGEN.
NEW PROCESS VAPOR BURNER.

No. 541,530.

Patented June 25, 1895.



UNITED STATES PATENT OFFICE.

CHARLES GOERGEN, OF ST. LOUIS, MISSOURI.

NEW-PROCESS VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 541,530, dated June 25, 1895.

Application filed April 16, 1894. Serial No. 507,748. (No model.)

To all whom it may concern:

Be it known that I, CHARLES GOERGEN, of St. Louis, Missouri, have made a new and useful Improvement in New-Process Vapor-Burners, of which the following is a full, clear, and exact description.

This improvement has for its object to prevent the vapor that remains in the various chambers of the burner after shutting off the drip from escaping into the room and causing a disagreeable odor, and it consists in the provision for closing the outlets from the burner drum and other parts of the burner, substantially as hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a view, partly in vertical section and partly in elevation, of a vapor-burner having the improvement embodied therein, the parts being adjusted to close the outlets from the burner; Fig. 2, a horizontal section on the line 2 2 of Fig. 1, the parts being adjusted to close the outlets from the burner; Fig. 3, a similar section, the parts being arranged as when the burner is in use; Fig. 4, a vertical section on the line 4 4 of Fig. 1, the parts being arranged as in Fig. 2; Fig. 5, a similar section on the line 4 4 of Fig. 1, the parts being as when the burner is in use; Fig. 6, a horizontal section on the line 6 6 of Fig. 1, the parts being adjusted to close the inlet to the sub-burner pipe; Fig. 7, a view similar to that of Fig. 6, the parts being adjusted to open the inlet to the sub-burner pipe; and Fig. 8, a sectional elevation of the movable portion of the register.

The same letters of reference denote the same parts.

The trouble referred to arises partly from vapor that escapes directly from the burner-drum and partly from that which remains in the evaporator funnel and the pipes that connect the funnel and the burner drum and that escapes into the burner-drum and jacket and thence to the outer air, and to fully carry out the improvement I provide for closing the passage leading from the burner-drum jacket to the funnel as well as all of the outlets from the burner drum. To this end the burner-drum is adapted to be closed at or toward its upper end to prevent the vapor from escaping upward to the cap. The inlet or inlets to

the sub-burner or center tube are adapted to be closed to prevent the escape of the vapor in that direction, and the air pipe leading to the evaporator funnel can also be closed.

An additional feature of the improvement is the adaptation of the various cut-offs to be operated as a single part.

A represents the evaporator-funnel, and *a* the inlet thereto.

B represents the pipe leading from the funnel to the burner-drum C, and D represents the pipe leading from the jacket E to the funnel A.

The sub-burner is shown at F, and G represents the sub-burner or center tube, and H represents the cap, all constructed and arranged as a new process vapor burner of the ordinary description and operation saving as modified or supplemented by the improvement under consideration.

The cut-off from the burner-drum may be arranged at any suitable level beneath the cap H, and it may be variously constructed. The preferable form and arrangement are shown.

I represents a register arranged just below the inlet *d* to the air pipe D. It is fastened to the sub-burner tube G, and it is provided with, or extended upward in the form of, a circular flange *i* to constitute that portion of the burner-drum that is above the level of the air-pipe D. The lower portion, *c*, of the burner-drum is provided with a top *c'* having openings *c''* to form the complementary part of the register I, substantially as shown. The register is fastened to the sub-burner tube as stated, and the tube is, in place of being a fixture as heretofore, adapted to be rotated, and the lower portion, *g*, of the tube that contains or carries the sub-burner F is inclosed in a sleeve J that is fastened to the bottom *c''* of the burner-drum and that has openings *j, j'* to provide inlets through which the vapor can enter the sub-burner when the burner is being used. There are openings *c'''* in the bottom *c''* to admit air to the sub-burner substantially in the customary manner. The register-flange is provided with a damper K that is suitably constructed for opening and closing the inlet *d* to the air pipe.

L represents a handle attached to the register and preferably by connecting it directly

with the register fan. The handle extends outward through a slot *e* in the jacket.

In operation, the oil is fed to the evaporator funnel and is there evaporated, and the vapor descends through the pipe B to the burner-drum, and the air passes from the space *e'* through the pipe D to the evaporator funnel, and the vapor ascends through the cap and into the sub-burner tube and is burned, all in the ordinary manner; but when it is desired to stop the drip and to stop the burner, the register, by means of its handle, is shifted from its position of Fig. 3 into its position of Fig. 2. This movement causes the register to be closed. It also by reason of the connection of the parts as described causes the sub-burner tube and sub-burner to be shifted from their position of Figs. 5 and 7 into their position of Figs. 4 and 6, and the damper K to be shifted from its position of Figs. 3 and 5 into its position of Figs. 2 and 4. The vapor is now prevented from ascending in the burner-drum to above the register. It is also prevented from passing through the openings in the sleeve J to the sub-burner; and it is also prevented from descending through the pipe D into the space within the jacket. By keeping the described cut-off closed until it is desired to resume the use of a burner, enough vapor can be retained within the burner to initiate the burning, and by shifting the handle and attached parts back again into their original position the vapor can pass to above the cap and be burned.

I claim—

1. In a vapor burner, the combination of a vapor drum, a main burner, and a sub-burner, both communicating with said drum, valves for controlling the communication of said burners with the drum, and means connecting said valves together for simultaneous operation, whereby, when the burners are extinguished, the drum is closed against the escape of vapor; substantially as described.

2. In a vapor burner, the combination of a vapor drum, a main burner communicating with said drum, a rotary valve for controlling communication between said burner and the drum, a sub-burner also communicating with the drum, a rotary valve for controlling communication between the sub-burner and the drum, and means connecting the two valves together for simultaneous operation; substantially as described.

3. In a vapor burner, the combination of a vapor drum, a main burner communicating with said drum, a sub-burner having a valved

communication with the drum, a rotary valve for controlling communication between the main burner and the drum, and means for rotating the main burner valve and thereby operating the same, and also opening and closing communication between the sub-burner and the drum; substantially as described.

4. In a vapor burner, the combination of an evaporating chamber, a vapor drum communicating therewith, a main burner and a sub-burner communicating with said drum, an air pipe leading to the evaporating chamber, valves for controlling communication between said burners and the drum, a valve for closing the pipe leading to the evaporating chamber, and means for simultaneously operating said valves; whereby, when the burners are extinguished, the drum is closed against the escape of vapor and the evaporating chamber is also closed; substantially as described.

5. In a vapor burner, having a main and a sub-burner, the combination of a vapor drum constructed in two sections, one fixed and the other revoluble, and a valve controlling the admission of vapor to the sub-burner, connected with the revoluble section of the drum and operated by revolving said section; substantially as described.

6. In a vapor burner, the combination of an evaporating chamber, a drum communicating therewith, a burner communicating with the drum, a rotary valve for controlling communication between said burner and drum, an air jacket partially inclosing the drum, an air pipe leading from the jacket to the evaporating chamber, a rotary valve for controlling communication between said jacket and the pipe, and means connecting the two valves together for simultaneous operation; substantially as described.

7. In a vapor burner, the combination of a vapor drum, said drum being formed in sections, one of which is fixed and the other revoluble, a main burner and a sub-burner each communicating with said drum, and means connecting the sub-burner to the revoluble section of the drum whereby the communication between said sub-burner and drum is controlled by rotating the revoluble section; substantially as described.

Witness my hand this 14th day of April, 1894.

CHARLES GOERGEN.

Witnesses:

C. D. MOODY,
A. BONVILLE.