

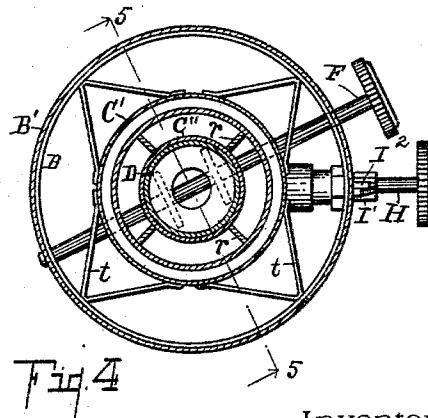
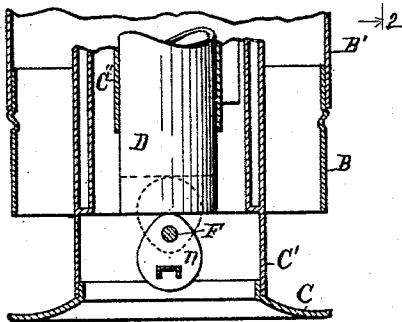
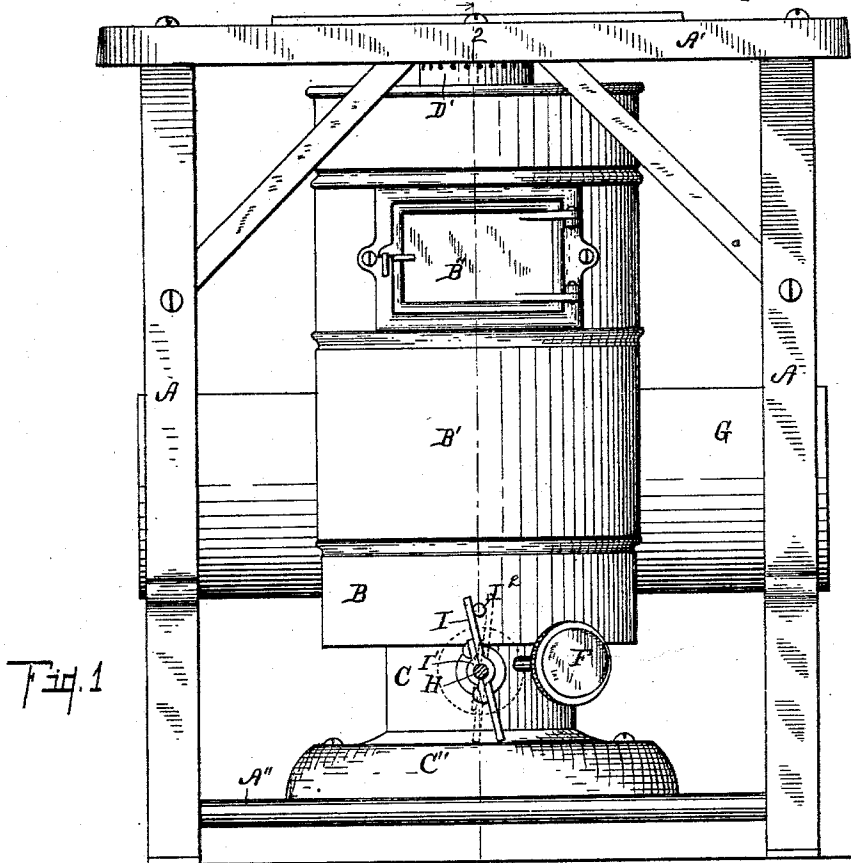
(No Model.)

2 Sheets—Sheet 1.

C. H. BOECK.
OIL STOVE.

No. 603,123.

Patented Apr. 26, 1898.



Witnesses.

Walter S. Wood
D. Eldred Wood.

Inventor.

Charles H. Boeck
By Fred L. Chappell

Attorney.

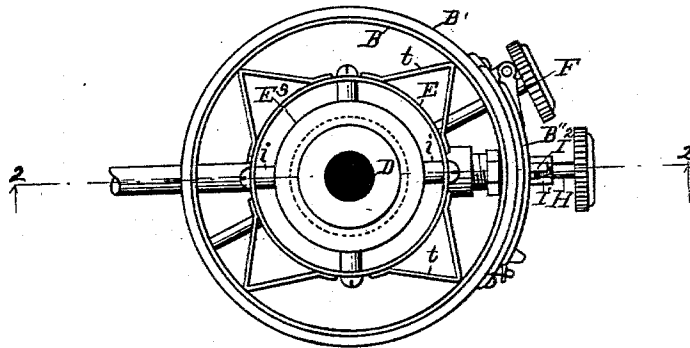
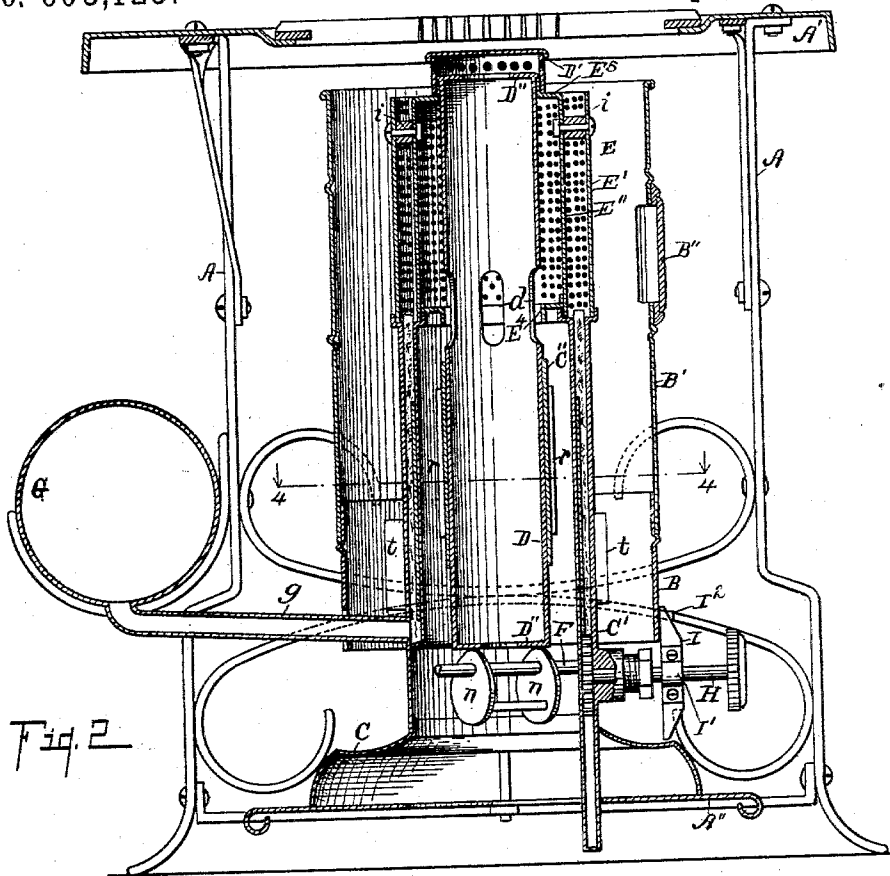
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UNITED STATES PATENT OFFICE.

CHARLES H. BOECK, OF JACKSON, MICHIGAN, ASSIGNOR TO THE NOVELTY MANUFACTURING COMPANY, OF SAME PLACE.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 603,123, dated April 26, 1898.

Application filed November 23, 1896, Serial No. 613,097. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BOECK, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Oil-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to oil-stoves, but more particularly to stoves of the class disclosed in my application filed August 10, 1896, Serial No. 602,368.

The primary object of my invention is to provide a stove which will be simple in construction, durable and efficient in operation, and which will avoid many of the objections incident to devices of this character as commonly constructed.

Further objects are to provide means for preventing the offensive gases which usually arise from the burner when the wick is lighted or extinguished and to provide simple and efficient means for raising and holding the mixing-chamber elevated, so as to permit the wick to be lighted.

The invention will be first hereinafter more particularly described, and then pointed out in the claims at the end of the description.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of a stove embodying my invention, the button for adjusting the wick being shown by dotted lines. Fig. 2 is a vertical sectional view of the stove, taken on the line 2 2 of Figs. 1 and 3. Fig. 3 is a plan view of the stove with the main frame and the cap for directing air over the mixing-chamber removed. Fig. 4 is a sectional plan view taken on the line 4 4 of Fig. 2; and Fig. 5 is a fragmentary vertical section, partly in elevation, of the lower portion of the burner and connections, taken on the line 5 5 of Fig. 4.

The main frame may comprise the end standards or uprights A, the top A', which supports the usual or any preferred form of grate, and a bottom plate A'', which connects the lower portions of said uprights. Upon the bottom plate and arranged over a suitable

opening therein is an open base C, which forms a support for the wick-tubes C' and serves to direct the air entering the opening in the bottom plate upwardly to the burner, oil being preferably supplied to said wick-tubes from the tank G by a suitable connection g. A guide-tube C'' is preferably centrally arranged within the burner, in which a draft-tube D may be arranged to slide, said guide-tube being rigidly held to the inner wick-tube by the strips or wings r or otherwise.

An open-ended outer casing, preferably comprising two sections B and B', surrounds the burner and may be secured to the wick-tubes by the wings or V-shaped strips t, said casing serving to protect the burner against side drafts and also to create a circulation of air around the burner and around the outside of the mixing-chamber.

The wick-tubes C' have their upper ends suitably flanged, so as to extend inwardly and outwardly, respectively, and upwardly to provide an annular recess in which the lower open end of the mixing-chamber E is adapted to fit and be supported above the wick. This mixing-chamber may comprise two concentric perforated tubes E' and E'', which may be rigidly secured together by the sleeves i and bolts or screws passing therethrough, so as to form an annular open-ended chamber. At the upper and lower ends of the mixing-chamber are rings or flanges or a ring E⁴ at one end and a flange E⁵ at the other, as shown, which serve to rigidly secure the mixing-chamber and draft-tube D together and to provide a suitable air space or chamber between the draft-tube and mixing-chamber for supplying heated air to the latter. The outer end of the draft-tube may be provided with a removable cap D', having lateral or other suitable passages to direct air outwardly into the flames issuing from the top of the mixing-chamber, so as to insure complete combustion of the gases at that point.

The parts so far described, with the exception of certain features of the draft-tube to be hereinafter referred to, are substantially the same as disclosed in my application before mentioned, and hence are not broadly claimed herein.

The draft-tube D has its inlet and outlet ends partially closed by perforated diaphragms D' D'', secured to or formed integrally with said tube, and may be provided with one or more elongated or other openings d, which extend on opposite sides of the ring E⁴ and afford a passage through the draft-tube to the mixing-chamber and a passage from the annular chamber between the draft-tube and the wick-tubes in order to keep the latter cool. By this means only sufficient air may be admitted to secure complete combustion.

It has been discovered that the offensive odor from wick oil-stoves is caused either by reason of the wick becoming saturated with the oil to such an extent that when the wick is lighted a quantity of oil is evaporated without being burned or is only partially consumed by complete combustion, or the odor is caused by the heated and charred end of the wick being drawn so far into the oil that a quantity of the oil is heated and evaporated when the light is extinguished. The wick should not descend into the oil so far that in raising the same oil will be brought up by a pumping action, nor should the wick be raised so high that its immersed portion is raised above the top of the wick-tube or a surface exposed that supplies too much oil for complete combustion, but the action of the wick should be only by capillary attraction and never be completely immersed in the oil. To provide against this objectionable feature, I preferably arrange an arm I on the rotary spindle H of the usual or any preferred form of wick-adjusting mechanism. This arm may extend on opposite sides of the spindle H and is preferably adjustably clamped thereto by the clip or band I' and screws or bolts passing through apertures in said clip, so as to engage threaded apertures in the arm, though it will be understood that the arm may be of any suitable form and that a set-screw passing through a boss in said arm or other securing means may be provided for adjustably holding the arm on said spindle. A stop I² may project outwardly from the lower section of the outer casing adapted to be engaged by the outer ends of the arm, so that when the spindle is rotated in one direction one end of the arm will engage the stop to prevent the wick being raised too high, and when rotated in the opposite direction the wick will not be carried too low, thus limiting the motion of the wick when raised or lowered, the arm I being adjusted on the spindle H as the wick shortens in length. This does away with the necessity for draft-openings in the casing B' at the top of the wick, so as to admit air to diffuse and oxidize the offensive gases arising from the same, and consequently a small opening controlled by a door B'' is all that is necessary in order to permit the wick to be lighted when the mixing-chamber is raised.

For the purpose of raising the draft-tube

and the mixing-chamber and holding the same elevated I preferably provide a stem or spindle F, which passes through the burner, on the inner portion of which spindle, preferably immediately below the draft-tube, is secured a cam n. This cam may be separated into two or more members adapted to engage the lower surface of the draft-tube, so that when the spindle F is rotated in one direction the cam will raise said tube and the mixing-chamber, and when rotated in the opposite direction the said mixing-chamber and the draft-tube will lower of their own weight. The form of the cam may be varied; but I prefer to employ an eccentric cam, for the reason that when the spindle is rotated the draft-tube and the mixing-chamber will be supported above the wick in whatever position said cam is placed.

In some instances a pivoted cam or eccentric adapted to be operated by a sliding stem or spindle may be employed for elevating the mixing-chamber, or a suitably-guided support or other means not serving as a draft-tube may be provided as the connection between the cam and the mixing-chamber.

The form of the deflector-cap may be changed—as, for instance, the lower surface may be partially closed and adapted to fit into the upper end of the draft-tube, so as to take the place of the upper diaphragm thereof. The mixing-chamber may be differently constructed and some of the parts of the stove may be changed or dispensed with or others substituted therefor without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an oil-stove, the combination with a burner, of a mixing-chamber arranged over said burner, and an inner draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages for supplying air to said air-chamber, said draft-tube having its inlet and outlet ends partially closed so as to limit the supply of air for supporting combustion, substantially as described.

2. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, a draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages whereby communication is established between the draft-tube and the mixing-chamber; the upper end of said draft-tube being provided with means for directing air outwardly into the flame issuing from the mixing-chamber; said draft-tube having its inlet end partially closed so as to limit the supply of air for supporting combustion, substantially as described.

3. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, an inner draft-

tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages whereby communication is established between the draft-tube and the mixing-chamber, and a removable cap fitting over the end of said draft-tube and provided with passages for directing air outwardly into the flame issuing from the mixing-chamber; said draft-tube having its inlet and outlet ends partially closed so as to limit the supply of air for supporting combustion, substantially as described.

4. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner comprising concentric perforated tubes, a central draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with openings or passages whereby communication is established between the draft-tube and the perforations of the inner tube of said mixing-chamber; the upper end of said draft-tube being provided with means for directing air outwardly over the mixing-chamber; said draft-tube having its inlet and outlet ends provided with flanges or diaphragms extending inwardly to partially close the same and limit the supply of air for supporting combustion, substantially as described.

5. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, an inner draft-tube separated from the mixing-chamber and the burner by annular chambers and having passages affording communication between its interior and each of said chambers, the said draft-tube being partially closed at its ends, and closures for the ends of the annular chamber between the draft-tube and the mixing-chamber.

6. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner comprising concentric perforated tubes, an inner draft-tube separated from the mixing-chamber and the burner by annular chambers, and means for closing the upper and lower ends of the chamber between said draft-tube and the mixing-chamber; said draft-tube being provided with passages connecting said annular chambers with each other and with the draft-tube and having its inlet end partially closed so as to limit the supply of air for supporting combustion, substantially as described.

7. In an oil-stove, the combination with a central-draft burner, and a vertically-movable mixing-chamber thereabove; of a central draft-tube fixedly connected with said mixing-chamber and depending within the burner and having a partially-closed lower end, said tube constituting a lifting member for the mixing-chamber; and lifting means engaging the partially-closed lower end of

the central draft-tube and having a handle on the exterior of the burner.

8. In an oil-stove, the combination with a central-draft burner, and a vertically-movable mixing-chamber thereabove; of a central draft-tube fixedly connected with said mixing-chamber and depending within the burner, a cam device upon which the lower end of said tube rests at two diametrically opposite points each at one side of the air-inlet to the tube, and a rotary spindle carrying said cam device and projecting through the side of the burner and having a knob or handle on the exterior thereof.

9. In an oil-stove the combination with a central-draft burner, and a vertically-movable mixing-chamber thereabove; of a central draft-tube fixedly connected with said mixing-chamber and depending within the burner and having a partially-closed lower end, said tube constituting a lifting member for the mixing-chamber; a pivotal cam or eccentric device engaging the partially-closed lower end of the central draft-tube, and means for turning the cam having a handle on the exterior of the burner.

10. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner, an inner draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with passages communicating with the air-space so as to supply heated air to said mixing-chamber, and a cap arranged over the upper end of said draft-tube and provided with a suitable passage or passages for directing air into the flame issuing from the mixing-chamber; said draft-tube having its inlet end partially closed so as to limit the supply of air for supporting combustion, substantially as described.

11. In an oil-stove, the combination with a central-draft burner, of a mixing-chamber arranged over said burner comprising concentric perforated tubes, a central draft-tube separated from the mixing-chamber by a suitable air space or chamber and provided with openings or passages for supplying air to said air-space, and a cap fitting the upper end of said draft-tube and having a suitable passage or passages to direct air into the flame issuing from the mixing-chamber; said draft-tube having its inlet and outlet ends provided with flanges extending inwardly to partially close the same and limit the supply of air for supporting combustion, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. BOECK.

Witnesses:

D. R. TARBELL,
N. P. BEEBE.