

H. T. KING.
Culinary Steamer.

No. 227,903.

Patented May 25, 1880.

Fig- 1

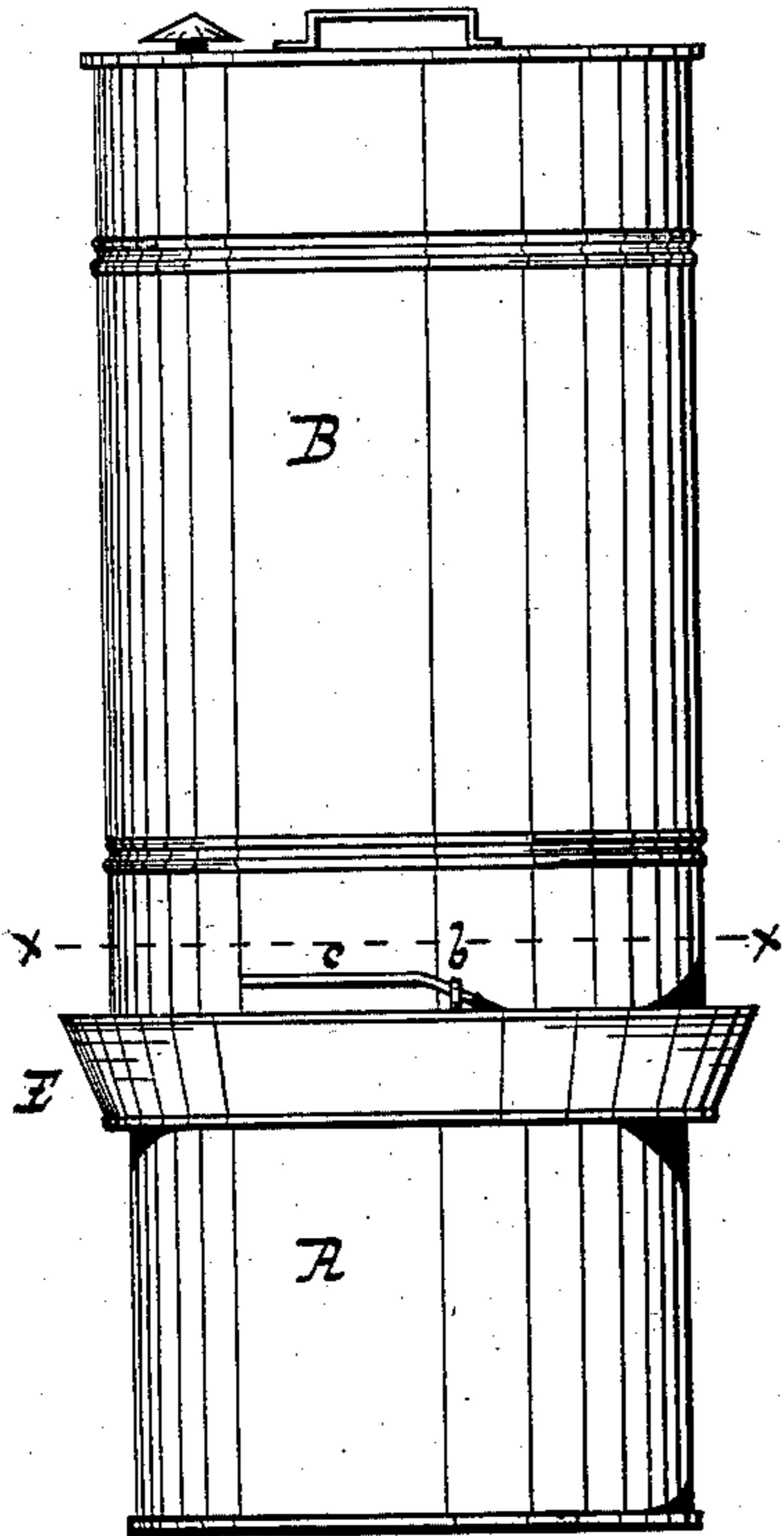


Fig- 4

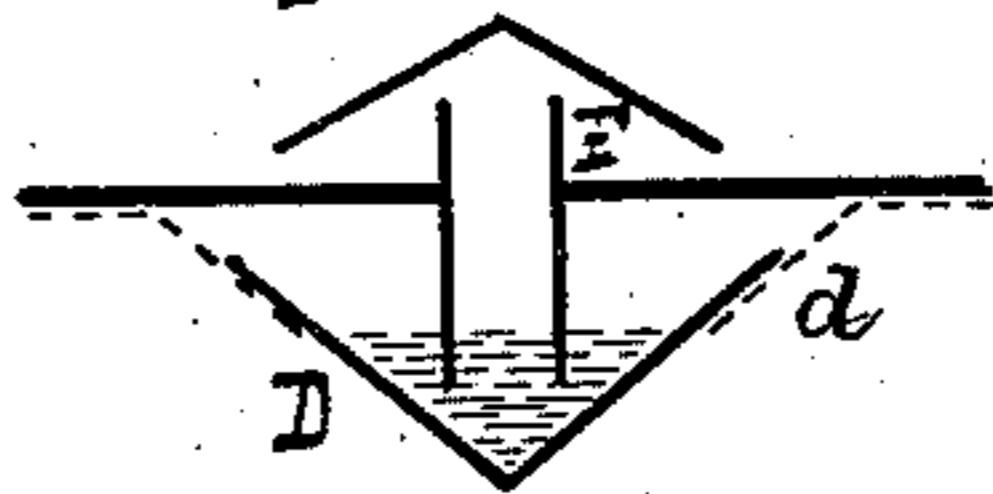


Fig- 5

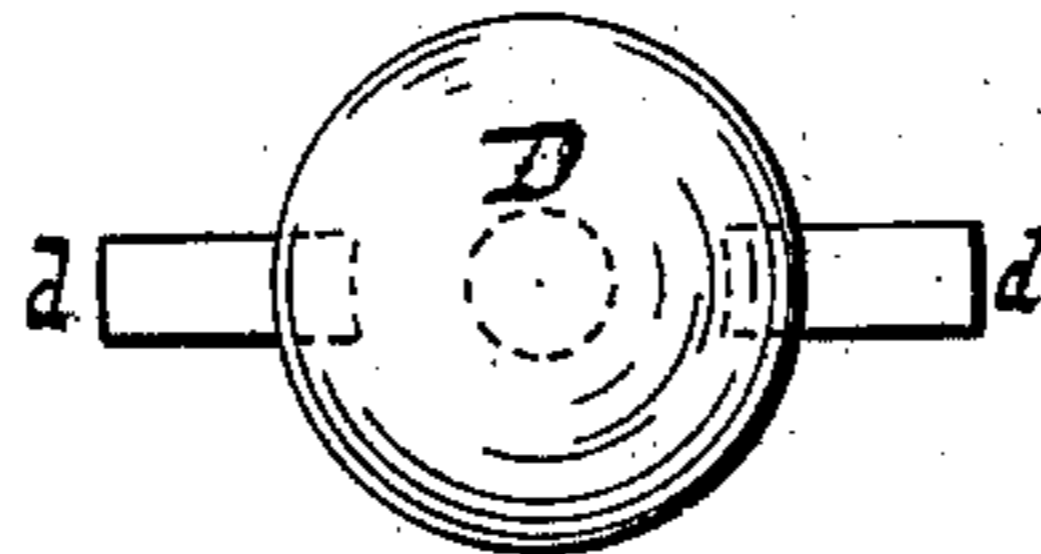


Fig- 2

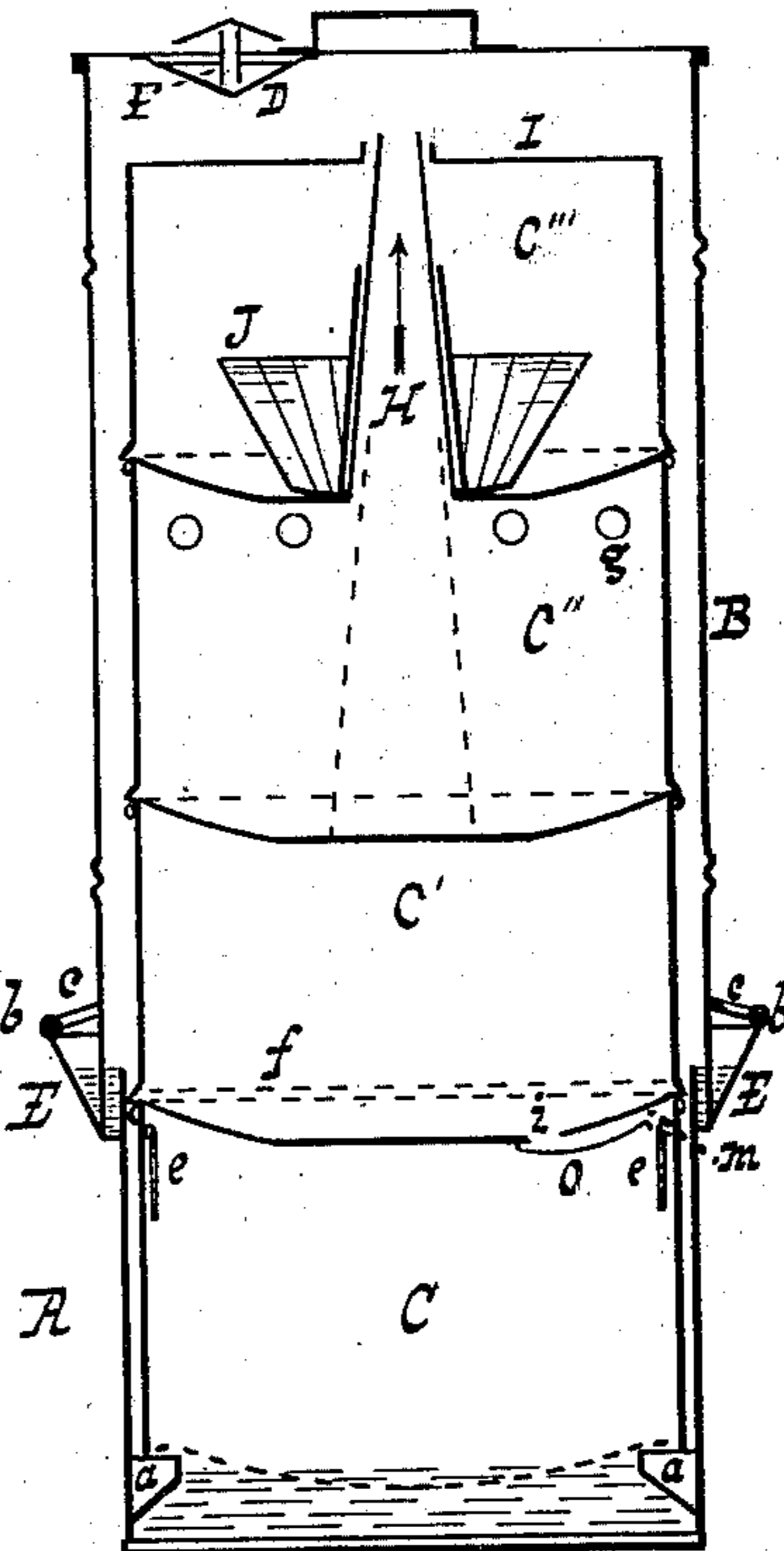


Fig- 3

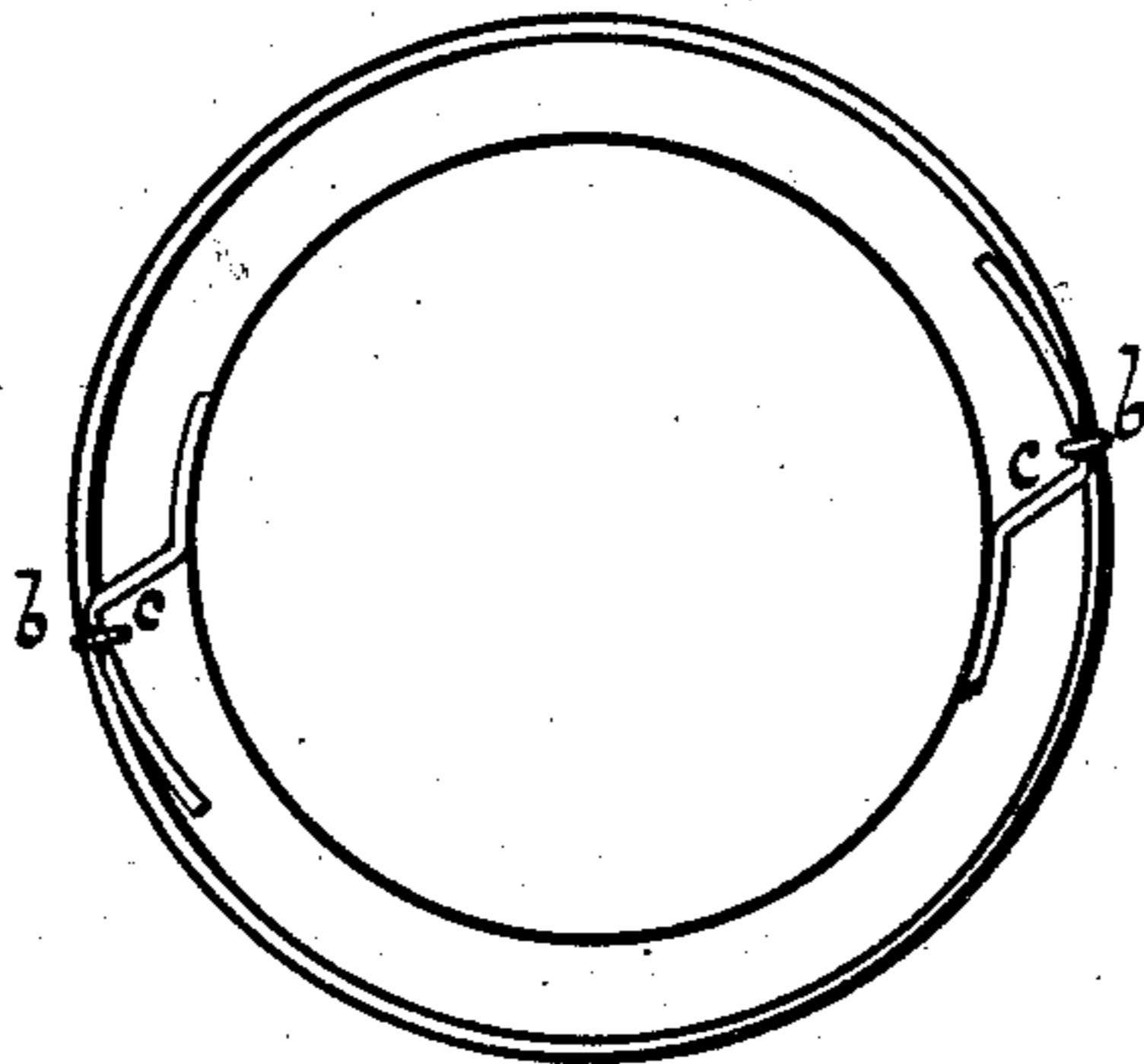
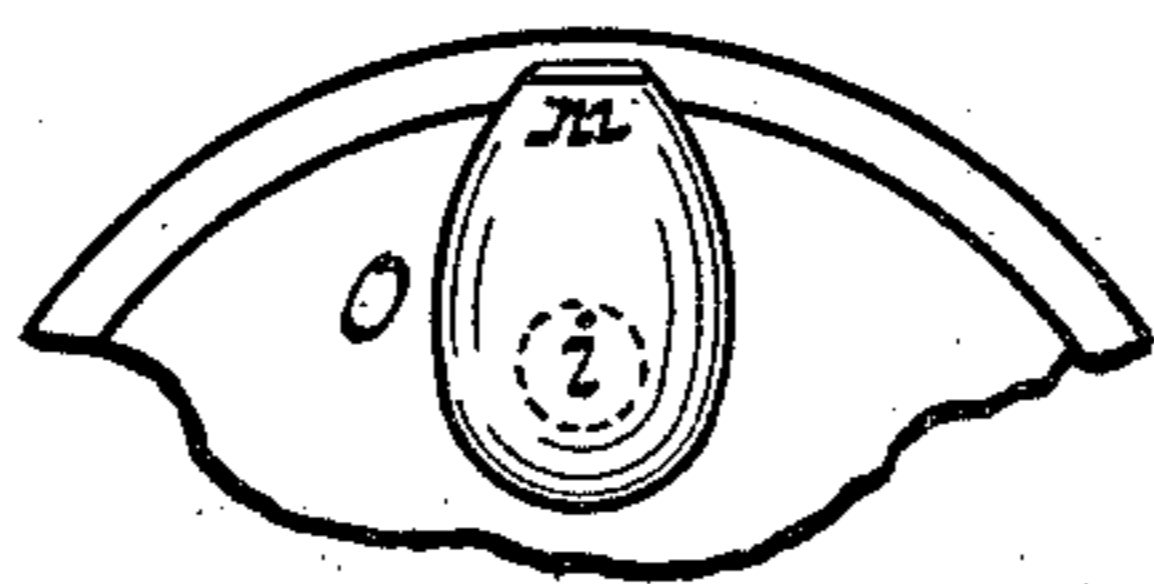


Fig- 6



Witnesses.

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UNITED STATES PATENT OFFICE.

HIRAM T. KING, OF ROCHESTER, NEW YORK.

CULINARY STEAMER.

SPECIFICATION forming part of Letters Patent No. 227,903, dated May 25, 1880.

Application filed July 18, 1879.

To all whom it may concern:

Be it known that I, HIRAM T. KING, of Rochester, Monroe county, New York, have invented certain Improvements in Culinary Steamers, of which the following is a specification, reference being had to the annexed drawings, in which—

Figure 1 is an elevation of my improved culinary steamer. Fig. 2 is a central vertical section of the same. Fig. 3 is a transverse section on the line *x x*. Fig. 4 is a vertical section through a portion of the top of the case, showing the escape-valve or pressure-regulator. Fig. 5 is a view of the latter device as seen from below; and Fig. 6 is a view of a portion of the under side of the tray *C'*, showing the trap *O*.

My invention relates to certain improvements in culinary steamers or domestic boilers designed for general cooking purposes; and it consists in an improved pressure-regulator for controlling the pressure of steam within the boiler, and in an improved means of securing the parts of the steamer to each other.

In the accompanying drawings, *A*, Figs. 1 and 2, is the boiler-section, to the bottom of which heat is applied in any convenient manner, and *B* is the case or cover, which is connected to the section *A* by a water-joint.

C C' C'' C''' are the trays or vessels for holding the articles to be cooked, and *D F*, Figs. 2 and 4, is the pressure-regulator.

The boiler-section *A* is provided on the inside, at a short distance above the bottom, with lugs *a a*, Fig. 2, which support the lower tray, *C*.

An annular channel is formed around the upper edge of the boiler-section by the flange *E*. The lower end of the case *B* fits into the channel between the upper edge of the boiler-section and the flange *E*. The top of the flange *E* reaches a short distance above the top of the boiler-section, so that the water of condensation, running down the inner sides of the case *B*, will accumulate in the channel until it rises to the level of the top of the section, after which it will run over into the interior of the boiler-section.

The case *B* is attached to the boiler-section by the small rings or eyes *b b*, soldered to the flange *E*, into which the bent wires *c c* enter

when the case *B* is placed on the boiler-section in the proper position and partially rotated. The projecting ends of the wires *c c* are bent slightly downward, and as they enter the eyes *b b* they draw the case tightly down on the boiler-section.

The pressure-regulator at the top of the case *B* consists of a vertical tube, *F*, Fig. 4, open at both ends, soldered into the top of the case, and having immediately below it an inverted cone or cup, *D*, connected to the top of the case in such manner that a free passage of air or steam is permitted between the upper edge of the cone and the top of the case.

On heating the apparatus with a small quantity of water in the boiler-section, the air first escapes through the tube *F*, and as soon as steam is generated it condenses in the bottom of the cone *D* and closes the pipe *F*. The pressure used may be varied by altering the length of the tube *F* and that of the cone *D*. A tube an inch in length will secure a pressure of about two pounds, which is sufficient for all ordinary culinary purposes.

When in the practical use of the apparatus steam escapes from the tube *F*, the heat should be moderated or the boiler removed farther from the fire.

In Fig. 5 the pressure-regulator is represented as seen from below, the cone *D* being attached to the top of the case by strips *d d*.

The cone *D* may be attached to the case, so as to be capable of being elevated or depressed vertically, for the purpose of graduating the pressure. The lower tray, *C*, which is located entirely within the boiler-section, is provided with a perforated bottom. On its inner side it is provided near the top with rings or loops *e e*, for the purpose of conveniently removing it from the boiler-section.

I prefer to make all the trays with concave bottoms, and each tray should fit on the one next below it as accurately as possible. The trays may be provided with a false bottom, made either of perforated sheet metal or wire-cloth, as shown in dotted lines at *f*, Fig. 2, for the purposes of roasting or broiling.

In order to obtain an active circulation of steam through the upper trays, I provide them with a vertical tube, *H*, Fig. 2, open at both

ends, and soldered at its lower end into the bottom of the tray. The next-lower tray is in this case provided near its top with perforations *g*, Fig. 2, through which the steam entering circulates upward through the tube *H*, as indicated by the arrow in Fig. 2.

The upper tray is provided with a cap or cover, *I*, Fig. 2, which is preferably provided with a flange fitting over the margin of the tray and with a perforation through its center to receive the pipe *H*.

The cover *I* prevents any condensation on the inside of the top of the case *B* from dropping into the tray *C'''*.

Any number of trays provided with the central circulating-tube may be employed, the tube of each one discharging into the tube of the tray next above it; but in this case the trays should not be perforated except the one next below the lower tray having a tube.

For cooking puddings or other articles to which any desired form is to be given I provide a smaller tray, *J*, Fig. 2, placed within one of the others, and which may be corrugated or of any other suitable shape. The small tray may, if desired, be provided with a circulating-tube at its center.

My improved culinary steamer may be made of any desired size and with any number of trays.

In practical use a small quantity of water is introduced into the boiler-section, and the various articles to be cooked having been introduced into the different trays, the trays are placed on the boiler-section and the case connected with the latter. Upon the application of heat to the boiler, as soon as any steam is generated it condenses on the inside of the case, and, running down, fills the annular channel between the top of the boiler-section and the flange *E*, and forms a perfectly-tight water-joint.

The amount of heat necessary to be applied to the boiler is determined by the escape of steam from the pressure-regulator pipe *F*.

As but a small quantity of water is used in my improved culinary steamer, and as no water need be lost if the heat is properly regulated, thereby obviating the necessity of reducing the temperature by the addition of fresh water, it is obvious that cooking will be done in my improved domestic boiler with great rapidity and economy.

As the boiler is entirely tight when prop-

erly managed, no odor arises from it, and as the articles to be cooked are confined in the trays by themselves, and as there is no communication between the trays, no flavor or odor from any one article can affect any other, and articles such as onions, cabbage, and fish can be cooked in one tray while puddings or other pastry are prepared in another without the latter becoming pervaded with the odor of the former.

In order to discharge any water which may accumulate in any of the trays, the trap *O* (shown in Fig. 6, and in section in Fig. 2) at the base of the tray *C'* may be used. A perforation, *i*, is made through the bottom of the tray at or near its lowest point, and a covered piece of sheet metal is soldered on the bottom, extending outward from the perforation, and provided with a lip or discharge-opening, *m*, placed slightly above the perforation *i*. Any water of condensation in the tray will be discharged through the opening *m*, while at the same time steam will be prevented from entering the tray.

I do not claim herein the pressure-regulator described in the patent of Blake, No. 172,378, January 18, 1876.

I do not claim herein anything in my previous patent, No. 198,769, January 1, 1878.

I claim—

1. In combination with the top or cover of a culinary steamer, the open tube *F*, secured thereto, communicating with the external air at its upper end, and provided at its lower end with the inverted cone *D*, attached to the inside of the cover, substantially as described.

2. The combination of the boiler-section *A* and cover *B*, connected by a water-joint, and provided at the top with a pressure-regulator consisting of the open tube *F* and inverted cone *D*, substantially as described.

3. The combination of the boiler-section *A* and cover *B*, connected by a water-joint, and attached to each other by the eyes *b b* and bent wires *c c*, substantially as described.

4. In combination with the concave bottom of the tray of a culinary steamer, the trap *O*, having perforation *i* and discharge-opening *m*, substantially as set forth.

HIRAM T. KING.

Witnesses:

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