

(No Model.)

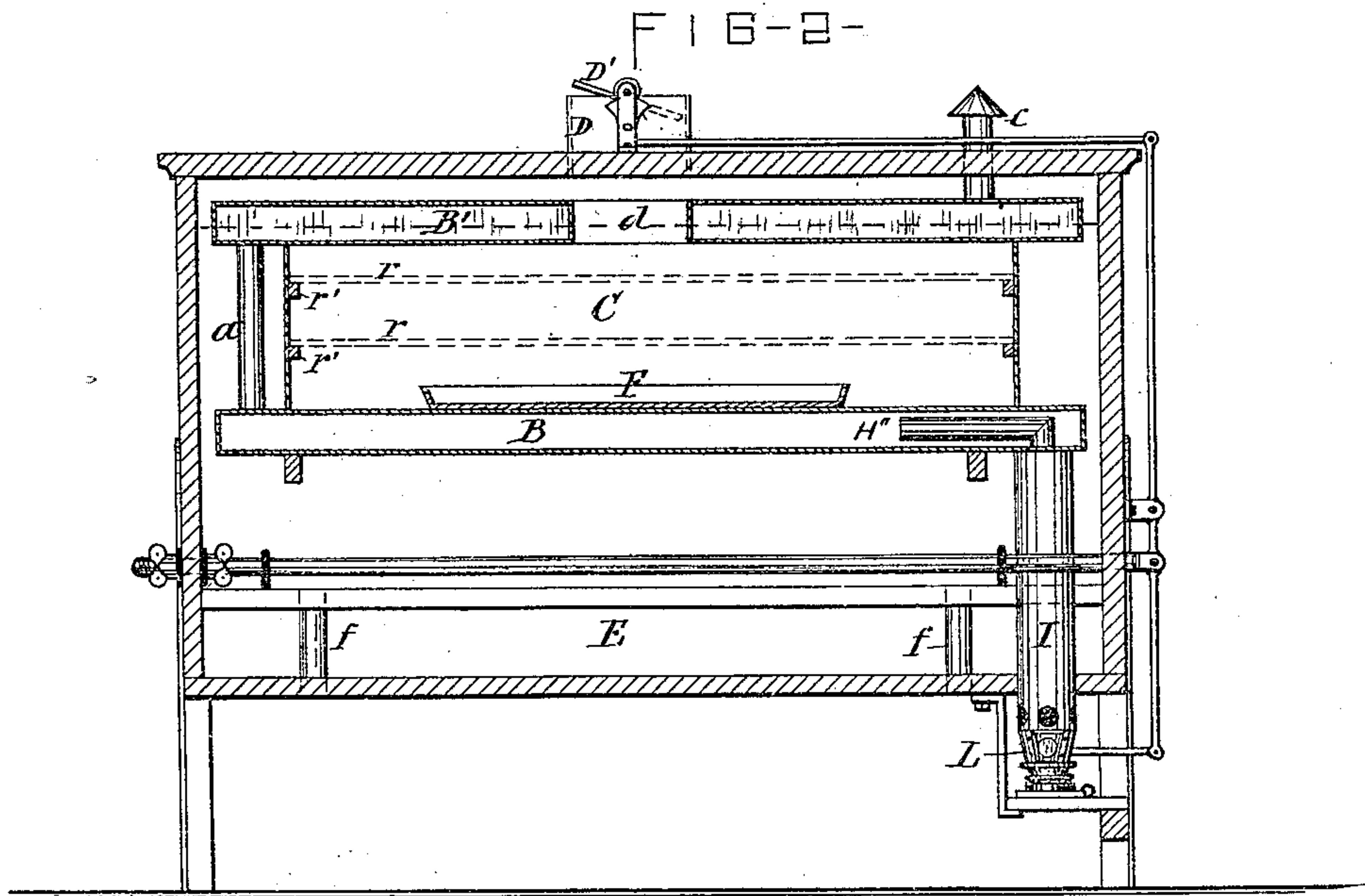
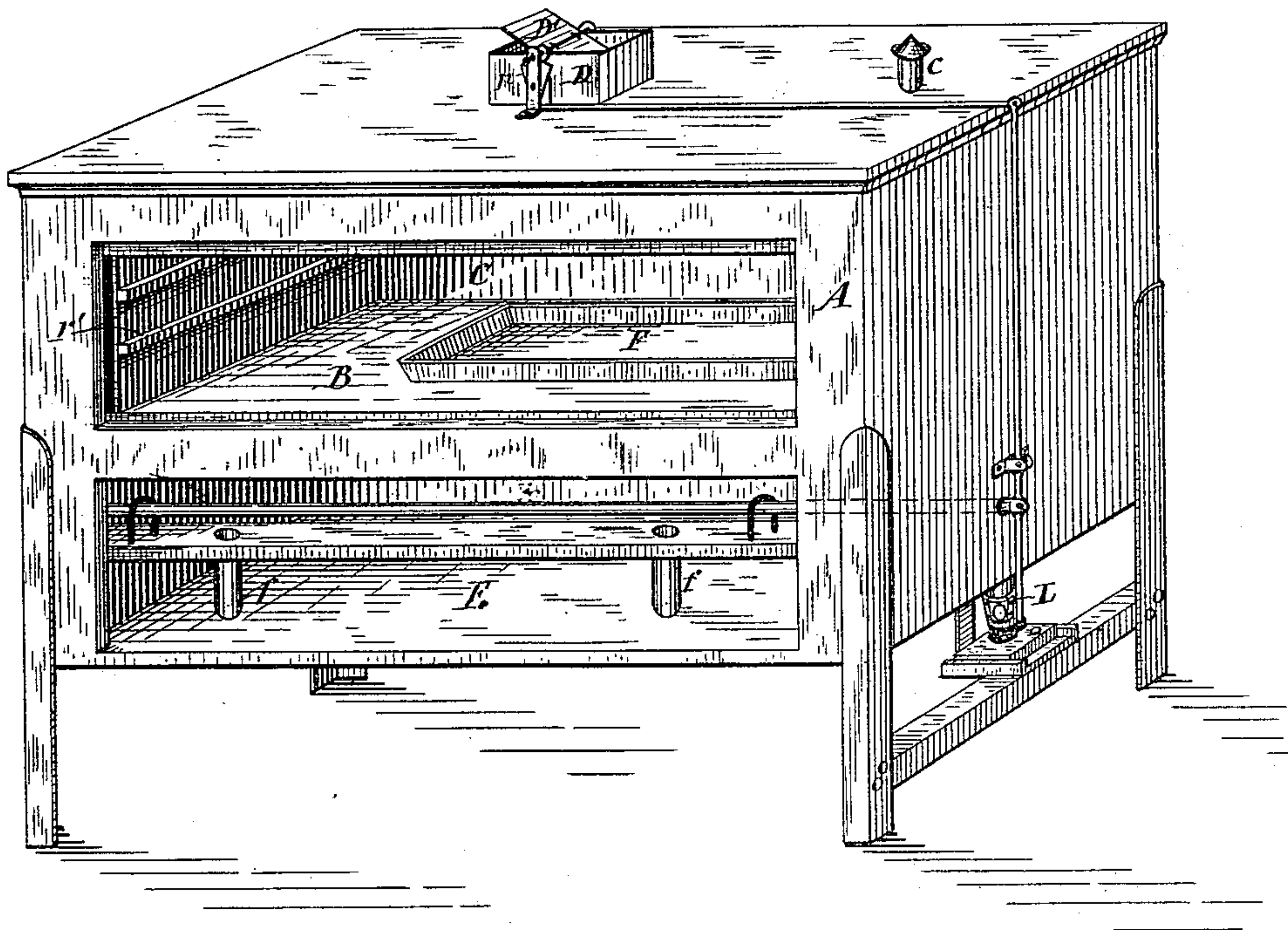
2 Sheets—Sheet 1.

E. W. ANDREWS.

INCUBATOR.

No. 332,033.

FIG. 1—Patented Dec. 8, 1885.



ATTEST—
Wm. C. Raymond.
S. C. Cannon

INVENTOR—
Edwin W. Andrews
per D. L. Lassar & Co.
Attys

(No Model.)

2 Sheets—Sheet 2.

E. W. ANDREWS.

INCUBATOR.

No. 332,033.

Patented Dec. 8, 1885.

FIG-3-

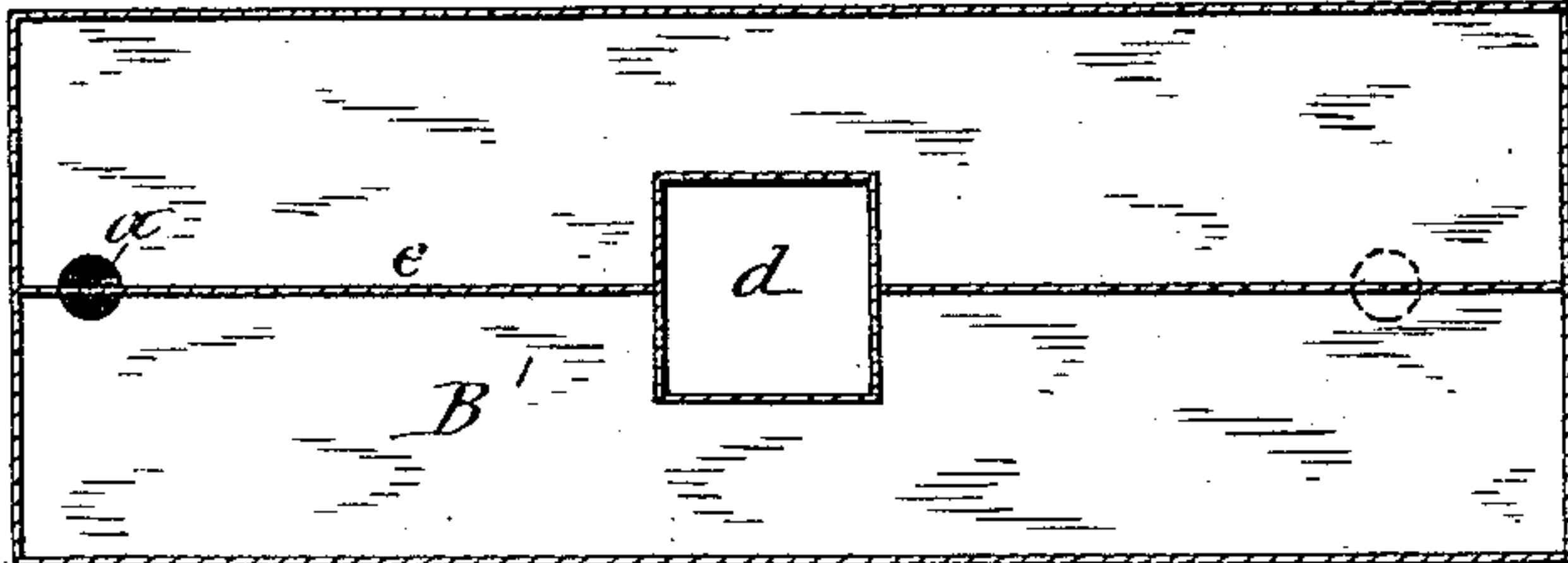


FIG-4-

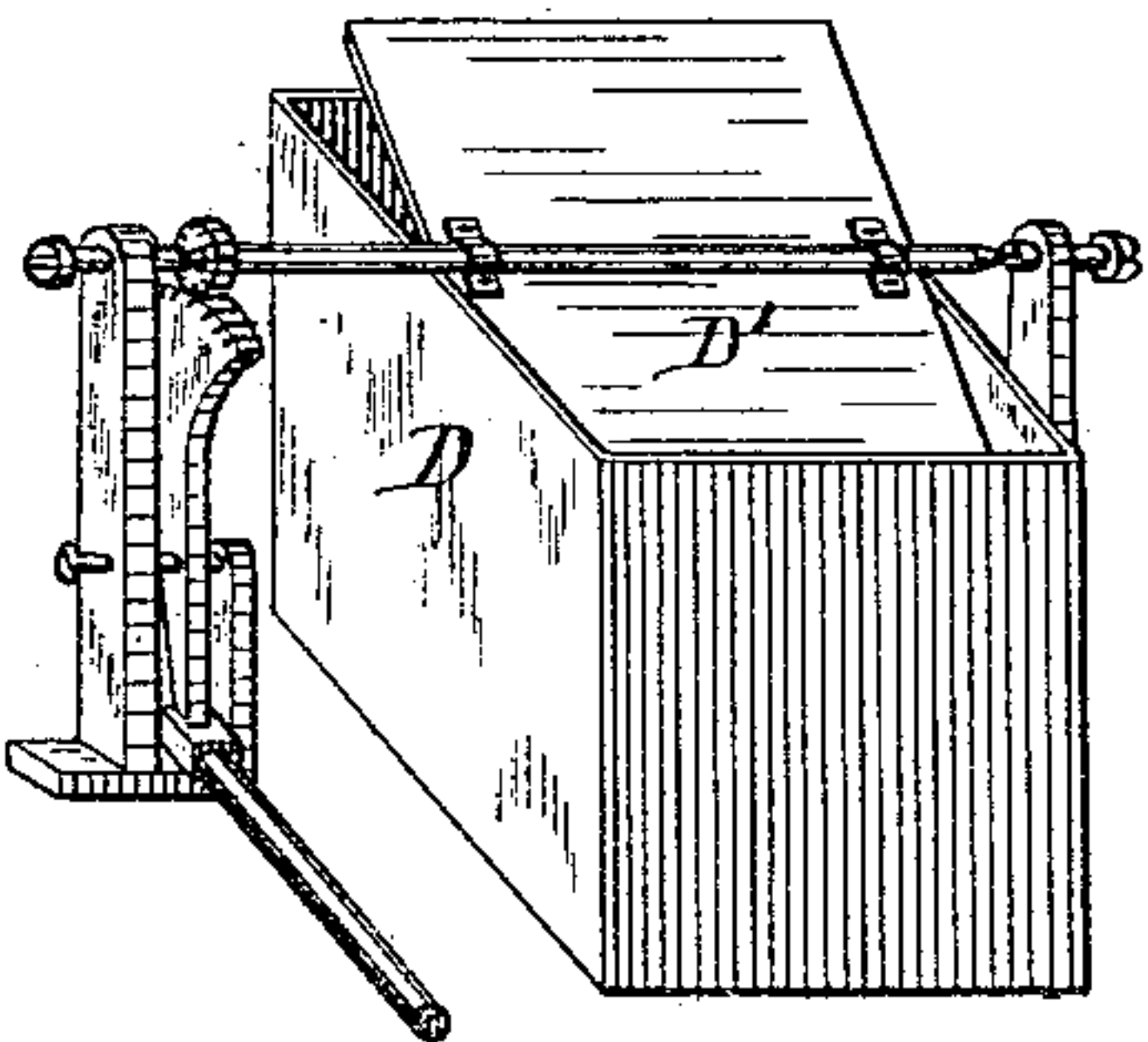
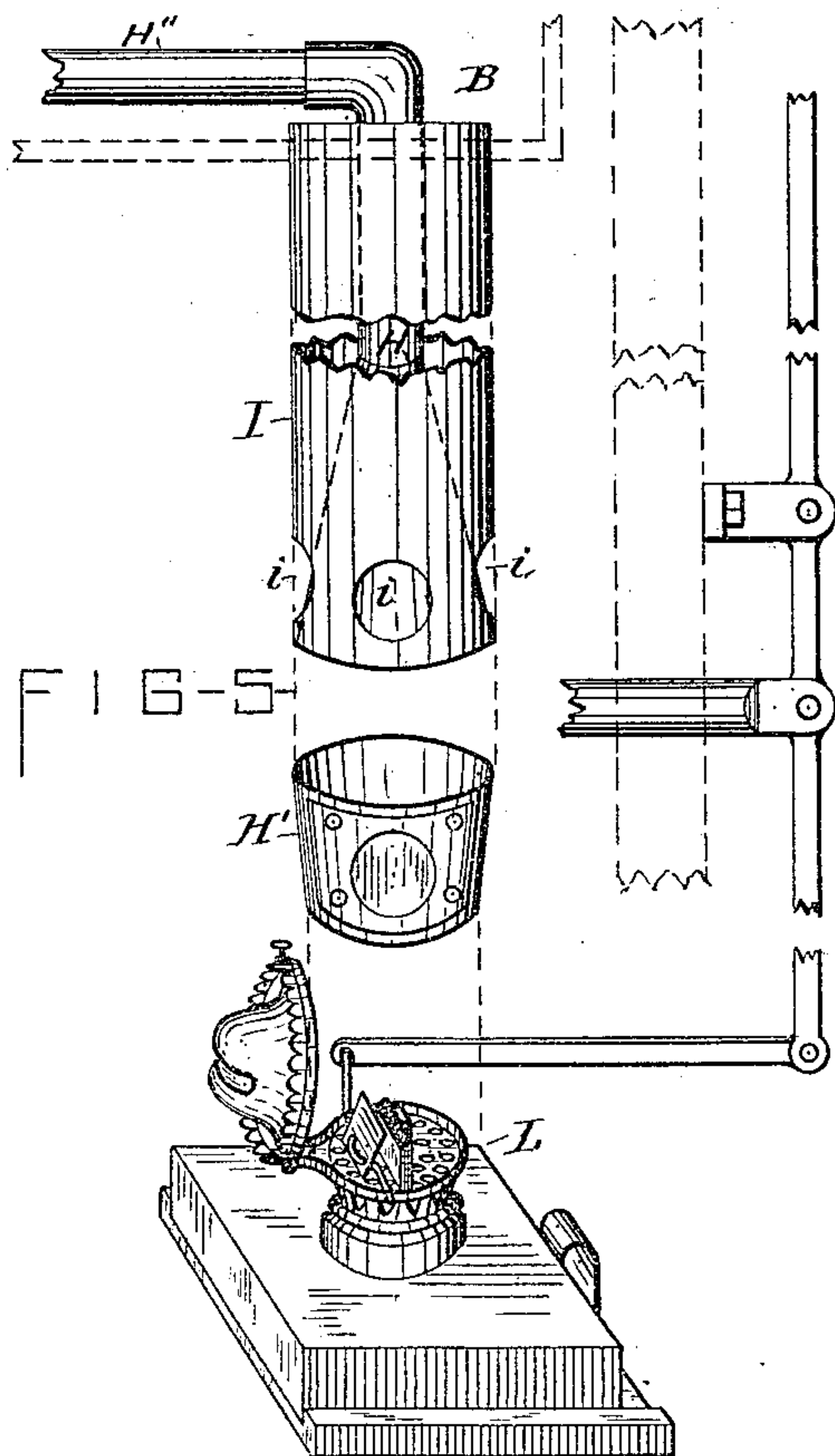


FIG-5-



ATTEST—

Wm E. Raymond

E. C. Carrion

INVENTOR—

Edwin W. Andrews

per Duell, Laass & Hey
his Atty.

UNITED STATES PATENT OFFICE.

EDWIN W. ANDREWS, OF ELMIRA, NEW YORK.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 332,033, dated December 8, 1885.

Application filed May 14, 1885. Serial No. 165,507. (No model.)

To all whom it may concern:

Be it known that I, EDWIN W. ANDREWS, of Elmira, in the county of Chemung, in the State of New York, have invented new and useful Improvements in Incubators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in a novel construction and combination of the devices for properly heating and ventilating the egg-chamber in the incubating-chamber, as hereinafter fully described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a perspective view of the exterior of my improved incubator. Fig. 2 is a vertical longitudinal section of the same, taken in front of the heating-pipe, which is extended from the lamp into the bottom of the lower heating-chamber. Fig. 3 is a horizontal section through the upper heating-chamber. Fig. 4 is an enlarged detail view of the ventilator-valve and its actuating mechanism, and Fig. 5 is an enlarged detail view of the lamp and its connection with the heating-chamber.

Similar letters of reference indicate corresponding parts.

A denotes the incubating-chamber, provided at the front with the usual doors, through which to obtain access to the interior of said chamber.

B B' represent two metallic heating-chambers, made of the form of rectangular pans covered air-tight and extended horizontally across the interior of the chamber A, with air-passages around their sides and ends, and arranged one above the other, to form the egg-chamber C between them, said egg-chamber being provided with racks *r r*, upon which to place the eggs, the racks being removably supported on cleats *r'*, attached to vertical plates secured between the end portions of the heating-chambers B B'. The lower of these chambers is sufficiently above the bottom of the chamber A to form an air-space, E, between them, and suitable ducts, *f f*, are provided in the bottom of the chamber A for the admission of air. The chambers B B' are connected at the center of one end by a flue, *a*, and at the opposite end the upper chamber is provided with the exit-pipe *e*, and the lower chamber communicates with the

heater, which latter consists of a lamp, L. (Illustrated in detail in Fig. 5 of the drawings.) The chimney of this lamp is composed of a metallic base, H', and a conical upper end portion, H, seated on the base H', and having its smaller end projecting into the chamber B, inside of which it has connected to it a horizontal extension or pipe, H'', for the purpose of preventing the heat from impinging directly upon the portion of chamber B over the end of the chimney. The chimney is surrounded by a cylindrical jacket, I, the upper end of which communicates with the interior of the chamber B. The lower portion of the said jacket is provided with apertures *i i* for the admission of air, which in its ascent to the chamber B absorbs the heat radiating from the chimney, and thus aids in heating the said chamber, and also produces the necessary draft to the burner of the lamp and through the chimney to produce proper combustion. The heat passes through the chamber B and ascends through the flue *a* to the upper chamber, B', and finally escapes through the exit-pipe *e*. In order to properly distribute the heat in the latter chamber, I provide the same with a central longitudinal partition, *e*, and arrange the flue *a* and exit-pipe *e* in the center of the ends of the chamber, so as to cause the aforesaid partition to bisect the openings of said flue and pipe in the chamber.

F represents a water-pan mounted on top of the lower heating-chamber, B, for the purpose of supplying the chamber A with the requisite moisture. Through the central portion of the upper chamber, B', is extended a ventilating-port, *d*, and over said port is the ventilator D, secured to the top of the incubating-chamber A and provided with the valve D'.

The operation of my improved incubator is as follows: The heating-chambers B B' receive the heating agent through them from end to end. The air entering the base of the chamber A first impinges upon the bottom of the lower heating-chamber, B, and becomes thereby diffused across said bottom, and is caused to absorb the heat therefrom. The air thence passes around the ends and sides of the chamber B up to the egg-chamber C, and over the top of the water-pan F to the central port, *d*, in the upper heating-chamber, B', and in this circu-

lation the air becomes charged with moisture, and is further heated by contact with the upper chamber, B', and thus imparts to the egg-chamber the required temperature in a most effective manner.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the incubating-chamber A, of the flat metallic heating-chambers B B', extended horizontally across the chamber A, and having air-passages around their ends and sides, and constituting the bottom and top of the intermediate egg-chamber, C, the flue *a*, connecting the heating-chambers at one end, the heater communicating with the lower chamber, B, at the opposite end, and the exit-pipe *c*, connected with the upper chamber, B', at the same end, substantially as described and shown.

2. In combination with the incubating-chamber A, having the air-space E and air-inlets *f* at the bottom, the heating-chambers B B', constituting the bottom and top of the egg-chamber C, and having around their sides and ends air-passages communicating with the air-space E, the heating-pipe H, terminating in the lower chamber, B, at one end, the exit-pipe *c*, connected to the upper chamber, B', at the same end, the flue *a*, connecting said heating-chambers at the opposite end, the

water-pan F on top of the lower chamber, B, the ventilating-port *d* through the central portion of the upper chamber, B', and the ventilator D on top of the chamber A, substantially as described and shown.

3. In combination with the lower heating-chamber, B, and the upper heating-chamber, B', the flue *a* and exit-pipe *c*, communicating with the upper chamber, B', respectively, at the center of opposite ends of said chamber, and the longitudinal partition *e*, arranged in the center of the chamber B' and across the center of the openings of the pipes *a c*, substantially as described and shown.

4. In combination with the heating-chamber B and lamp L, the chimney H, extending into said chamber, and the jacket I, provided with apertures *i i* in its sides, and having its upper end communicating with the interior of the heating-chamber, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Elmira, in the county of Chemung, in the State of New York, this 9th day of May, 1885.

EDWIN W. ANDREWS. [L. S.]

Witnesses:

BENJ. F. PRALL,
RICHARD KER.