

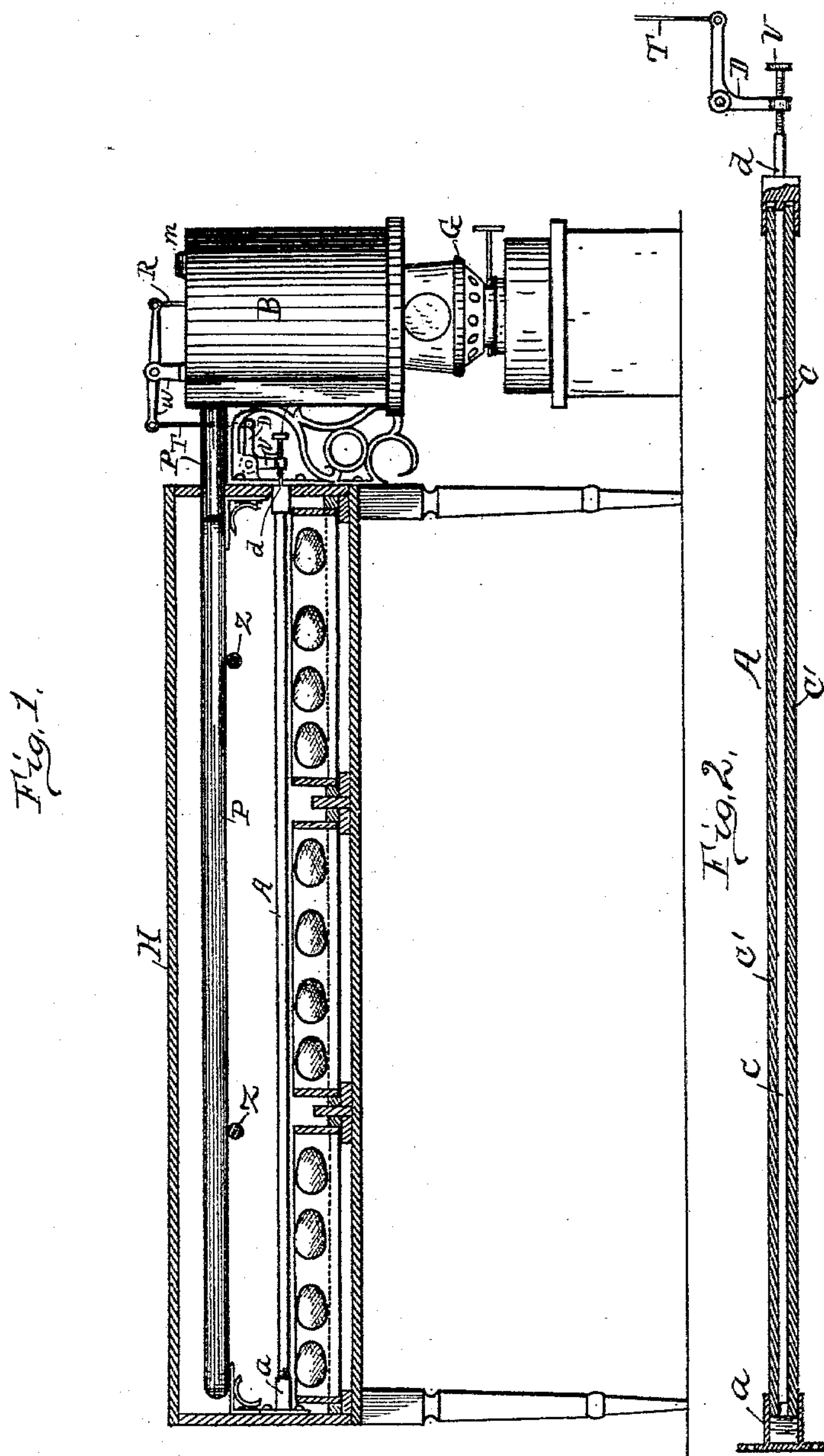
(No Model.)

2 Sheets—Sheet 1.

L. R. OAKES.
INCUBATOR.

No. 562,847.

Patented June 30, 1896.



Witnesses,
E. A. Hutchins
L. B. Hutchins.

Inventor
Lucian R. Oakes By
Thos H Hutchins atty

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

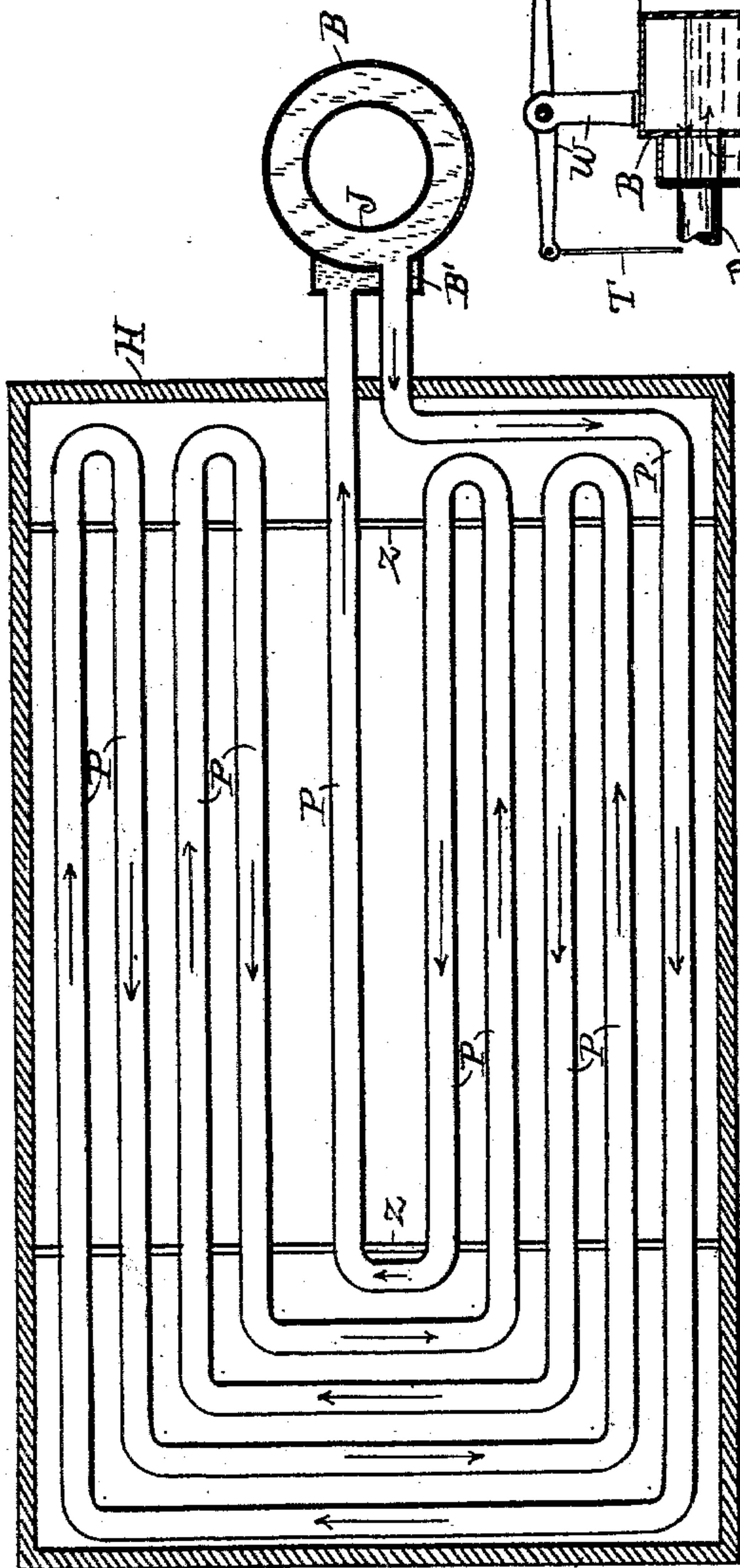


Fig. 4.

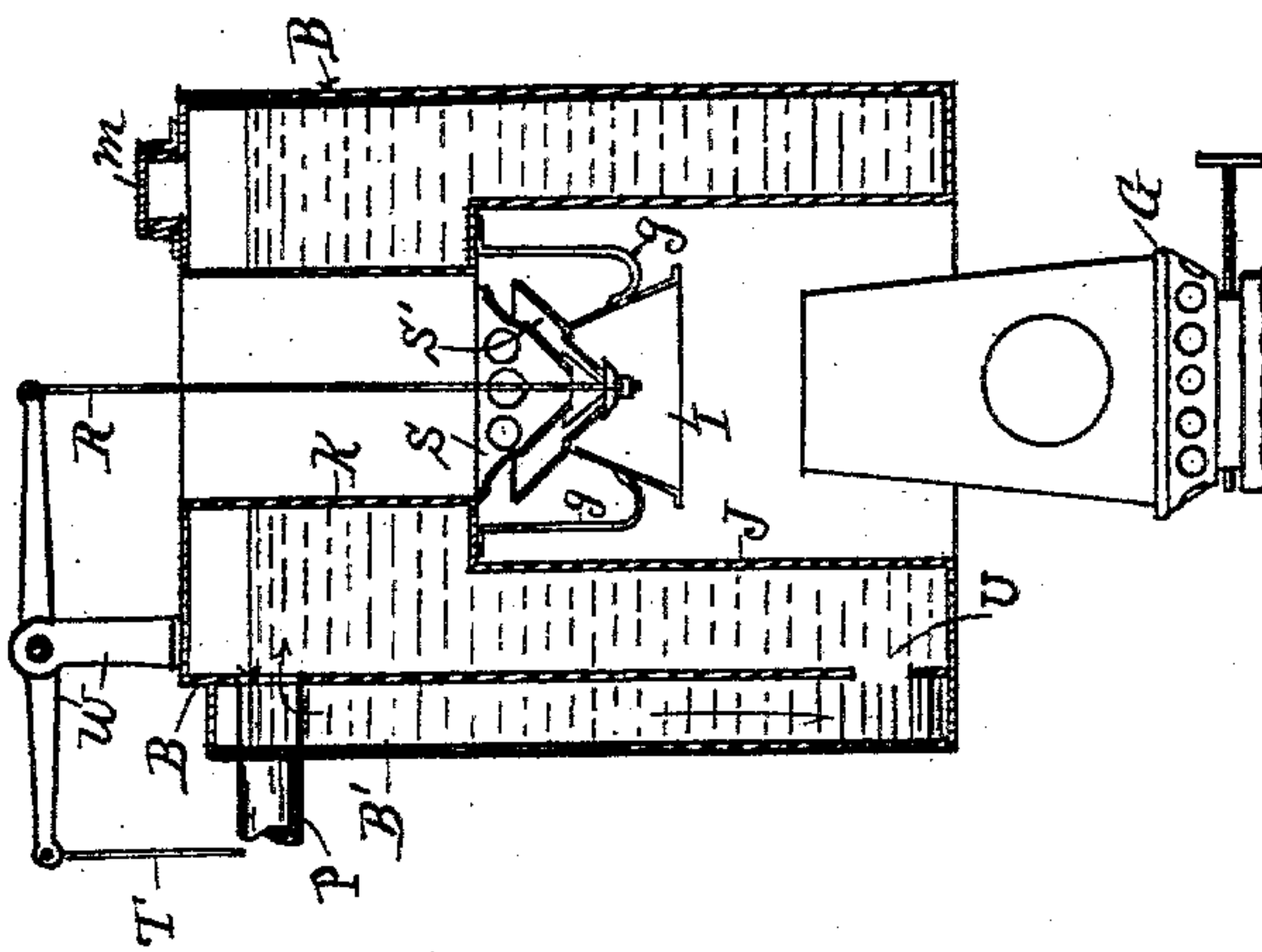
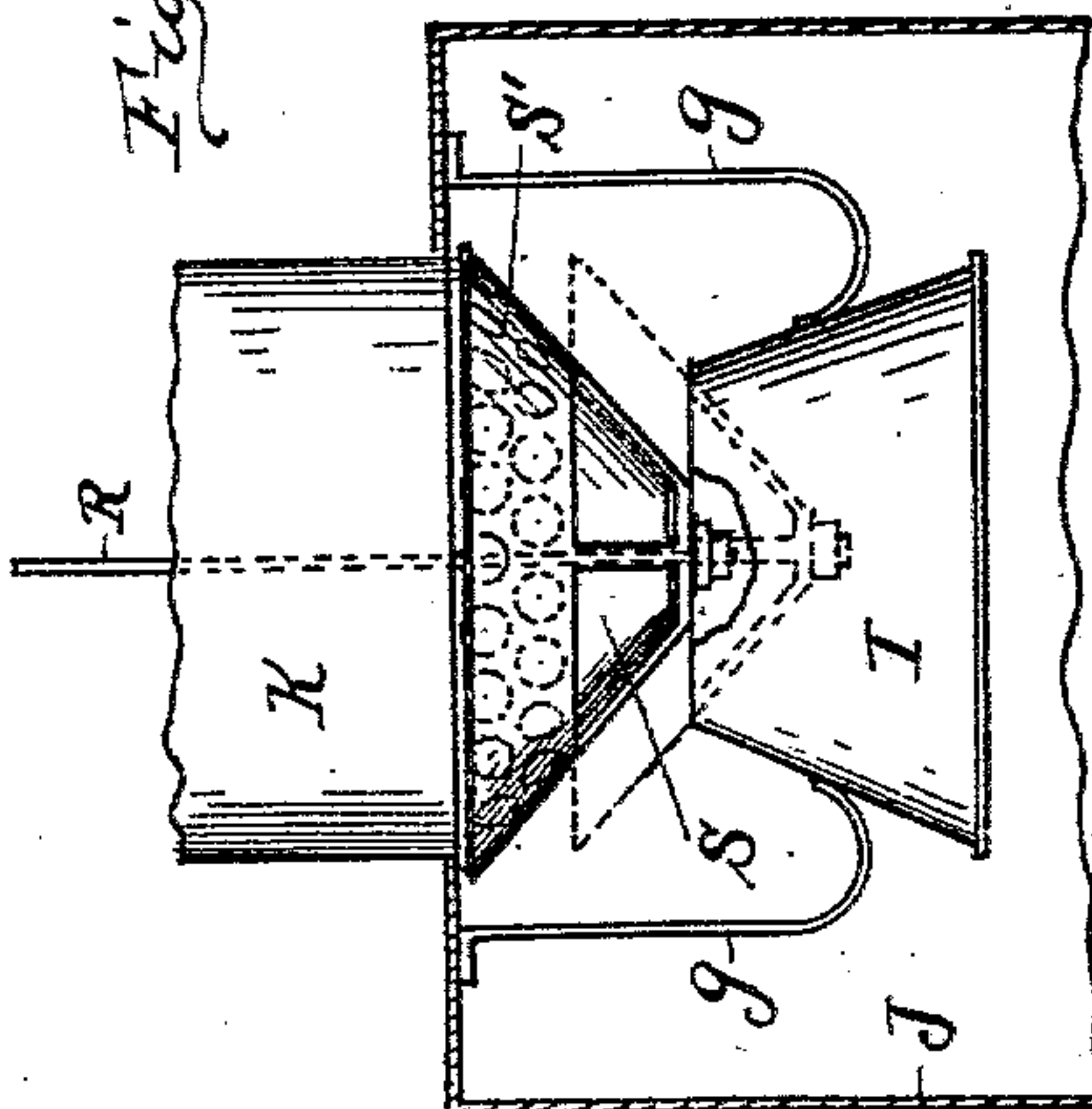


Fig. 5.



Witnesses,

E. A. Hutchins
L. B. Hutchins.

Inventor
Larcian R. Oakes By
Thos H Hutchins atty

UNITED STATES PATENT OFFICE.

LUCIAN R. OAKES, OF BLOOMINGTON, INDIANA.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 562,847, dated June 30, 1896.

Application filed March 12, 1896. Serial No. 582,875. (No model.)

To all whom it may concern:

Be it known that I, LUCIAN R. OAKES, a citizen of the United States of America, residing at Bloomington, in the county of Monroe and State of Indiana, have invented certain new and useful Improvements in Incubators, of which the following is a specification, reference being had therein to the accompanying drawings, and the letters of reference thereon, forming a part of this specification, in which—

Figure 1 is a side elevation of the incubator and of its boiler attached at one end. Fig. 2 is a longitudinal section of the thermostat of the incubator, consisting of a rubber tube inclosing a steel rod. Fig. 3 is a plan of the coil-pipe for conducting hot water through the incubator. Fig. 4 is a vertical section of the boiler and of its interior attachments, and Fig. 5 is a detail view of the conical damper devices contained within the boiler.

This invention relates to certain improvements in incubators, which improvements are fully set forth and described in the following specification and claims.

Referring to the drawings, H represents an ordinary incubator having egg-trays for holding eggs to be hatched, as shown in Fig. 1.

B is a vertical boiler having a vertical tubular flue through its center and adapted to have a lamp G, or other suitable heater, beneath its flue, so the heat therefrom may ascend into said flue at its lower end. The particular construction of the boiler is shown in Fig. 4. The lower portion J of its flue is larger in diameter than its upper portion K, thus forming an annular offset between the two portions of said flue, to which offset is attached depending arms g for supporting centrally in the upper part of the lower larger flue a frustum of a cone I.

S is an inverted cone having its base secured to the lower end of the upper smaller flue K. The sides of said cone for about half the distance from the base are perforated so as to be nearly all cut away, and there is a circular opening in its apex.

S' is an inverted cone of the same form as cone S and arranged between it and the apex of the frustum I, which forms a seat for said cone S'. Said cone S' is perforated in its sides down about half-way from its apex and left

solid in its part toward its base, so that when it is moved upward to fit against the outer surface of cone S the perforations in said cone in its sides will be closed. The cone S' is connected with a thermostat A through the medium of rod R, lever W, rod T, bell-crank D, push-rod d. (Shown in Figs. 1, 2, and 4.) The ends of said boiler, except its flue, are closed by heads, the upper head having a feed-hole covered by a screw-cap m.

B' is a jacket attached to the side of the boiler and communicating therewith near its lower end, as shown in Fig. 4.

P is a pipe for conducting hot water from the boiler out through the incubator and back to the boiler. The outflow end of said pipe leads from the boiler proper, as shown in Fig. 3, and returning to the upper end of jacket B', from whence the flow of water is downward and into the lower part of the boiler, as shown by the arrows in Fig. 4. The coil-pipe P rests on cross-rods Z, as shown in Fig. 3.

The construction of the thermostat is shown in detail in Fig. 2, and consists of a rubber tube C', having its outer end secured in a socket a, attached to the inner side of the incubator, while its inner end is attached to the socketed end of a push-rod.

C is a steel rod inclosed within the rubber tube C' for the purpose of preventing the tube from sagging. The thermostat is arranged immediately above the egg-tray and below the heating-pipe P. The pipe P is arranged so as to conduct the water first around the outer sides of the egg-chamber and returning through the coils, so as to lead gradually to the center of the egg-chamber, thus preventing the incubator from being heated too much in the middle.

In operation it is intended that cone S' shall be in contact with cone S, so as to close its perforations, being in reverse position from that shown in Fig. 4, at which time heat from the lamp will be prevented from passing out through the upper flue K, and will be deflected by the cones S and S', so as to come in contact with the walls of flue J and escape at the upper end of the boiler, and in so doing heats the water in the boiler. When the water is heated to a certain desired extent, the rubber-tube thermostat will, through its said connection with cone S', cause it to be moved down-

ward to its seat on the apex of the frustum I, when the heat will pass up through the perforations in cone S and escape through flue K, and thus heat the water to a much less degree, and thus automatically regulate the heating of the water, so as to maintain it at about one temperature continuously.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In an incubator, the combination of the boiler B having the central differential flue J, K and having the jacket B' perforated inverted cone S covering the lower end of flue K, frustum I located below said cone and secured to the boiler to hold it in proper position, perforated inverted cone S' located between said frustum and cone S, said frustum forming a seat for cone S', rod R, lever W, rod T, bell-crank D, thermostat A consisting of rub-

ber tube C' having the push-rod d on its inner end, and steel rod inclosed within said rubber tube, and the pipe P all arranged to operate substantially as and for the purpose set forth.

2. In an incubator, the boiler B having a differential vertical flue J, K; the perforated inverted cone S secured in said flue at its offset, the frustum I located immediately below said cone and a short distance therefrom, the perforated inverted cone S' located between said frustum and cone S, and the means for operating cone S' to regulate the passage of heat through cone S, all combined and arranged to operate substantially as and for the purpose set forth.

LUCIAN R. OAKES.

Witnesses:

H. A. LEE,

L. M. RAWLINS.