

(No Model.)

L. H. CUTTING.

HEAT REGULATOR FOR INCUBATORS.

No. 345,280.

Patented July 13, 1886.

Fig. 1.

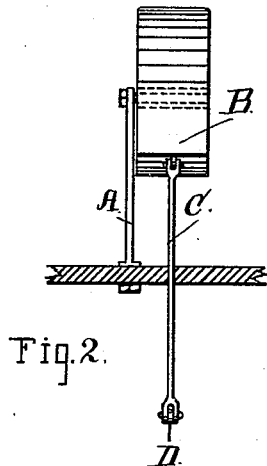
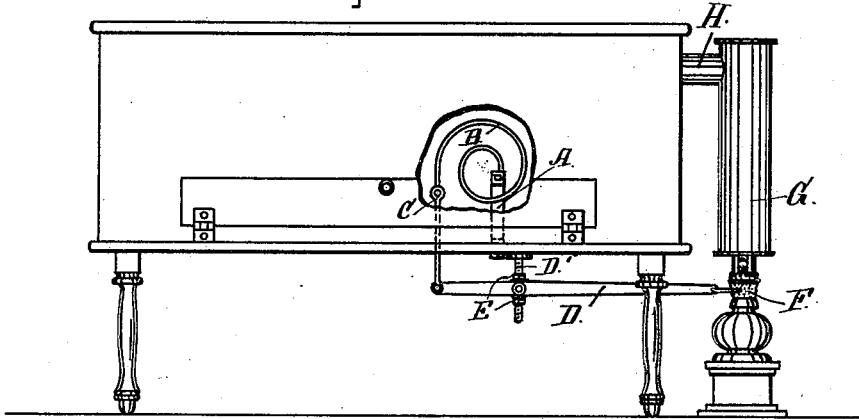


Fig. 2.

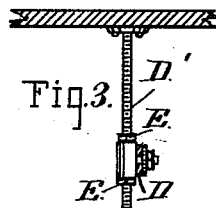


Fig. 3.

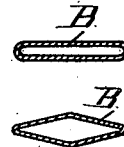


Fig. 4.

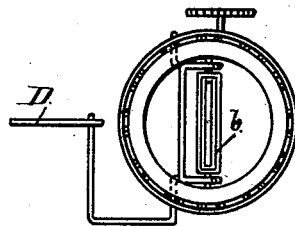


Fig. 5.

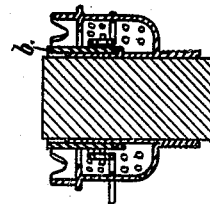


Fig. 6.

Witnesses:

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# UNITED STATES PATENT OFFICE.

LEWIS H. CUTTING, OF STOCKTON, CALIFORNIA.

## HEAT-REGULATOR FOR INCUBATORS.

SPECIFICATION forming part of Letters Patent No. 345,280, dated July 13, 1886.

Application filed November 30, 1885. Serial No. 184,363. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS H. CUTTING, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented a new and useful Means for Regulating the Heat of Incubators, of which the following is a specification.

The object of my invention is to provide a means whereby the heat in the hatching-chamber of incubators is regulated in an automatic manner. I accomplish this object by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an incubator with my invention applied thereto. Fig. 2 is a side view of the expansion tube and rod connecting with a balance lever or beam. Fig. 3 is a view in elevation of the adjusting device for the balance lever or beam. Fig. 4 is a cross-section of an expansible tube or tubes employed. Figs. 5 and 6 are views in detail of the burner, showing the slide and its connection for regulating the heat from the lamp.

To the upper end of the post A, within the incubator or hatching-chamber, I connect a flattened or other shaped tube, B, which is filled with ammonia, alcohol, ether, or other liquid capable of expansion when in the presence of heat. The tube is coiled once or twice upon itself, as shown, and from the free end a link-connection, C, is made with a balance beam or lever, D, which link passes through the bottom of the incubator and connects with the extreme inner end of the balance beam or lever. The outer end of this balance-beam is provided with a slide, b, which shuts down over the end of a lamp-wick tube, so that when the coil or flattened tube expands it will raise up the end of the lever and shut off the heat from the lamp or deaden the flame, the slide or tube moving up or down on the wick-holder. A threaded fulcrum, D', is connected to the bottom of the incubator, and passes downward through the balance-beam, in which position it is held by the set-screws E, and by turning these set-screws the balance-beam is raised or lowered, and the space through which the outer

end passes when actuated by the expansion or movement of the flattened tube is regulated, and a longer or shorter time is required to raise or lower the tube around the wick-tube or extinguisher of the lamp. At the end of the incubator is placed the lamp F, leading into the vertical drum G, from which extends a pipe, H, that enters the upper portion of the incubator.

In operation, the heat from the lamp passes up the vertical drum into the incubator, and when the temperature is raised to a certain degree the fluid or liquid in the coiled tube will expand and gradually move upward or uncoil it, and thereby depress the outer end of the balance beam or lever, and raise up the tube which surrounds the lamp-wick tube, so that it will gradually shut off the heat from the lamp automatically and regulate the temperature in the incubator to the desired degree. When a proper adjustment of the parts is had by means of the balance-beam and set-screws the parts are so nicely adjusted that a uniform degree of heat will always be had in the incubating-chamber.

The tube containing the liquid or fluid may be of a soft metal easily affected by heat, and may be flattened, diamond, or other shape in outline or cross-section.

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

The combination, with a heat-regulator for incubators having a fixed coiled flattened or other shaped tube or pipe containing a liquid or fluid capable of being expanded by heat, of the link C, balance-beam D, a lamp-extinguisher attached to the outer end of the balance-beam, threaded fulcrum D', for adjusting the balance-beam, and set-screws E, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

LEWIS H. CUTTING. [L. s.]

Witnesses:

C. W. M. SMITH,  
CHAS. E. KELLY.