

(No Model.)

2 Sheets—Sheet 1.

L. KUHNER.
INCUBATOR.

No. 484,325.

Patented Oct. 11, 1892.

Fig. 1.

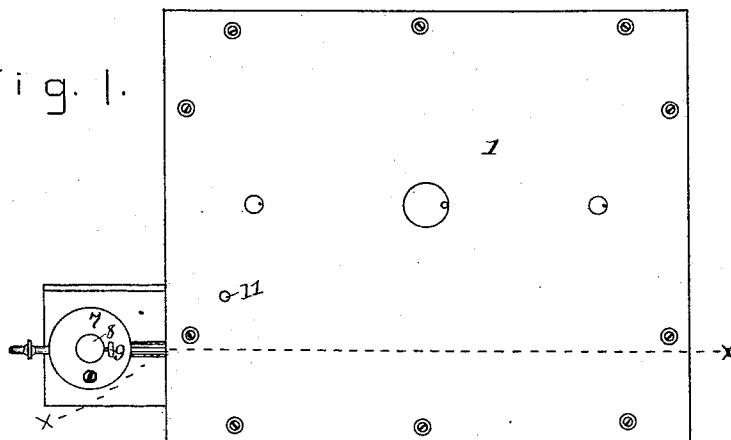
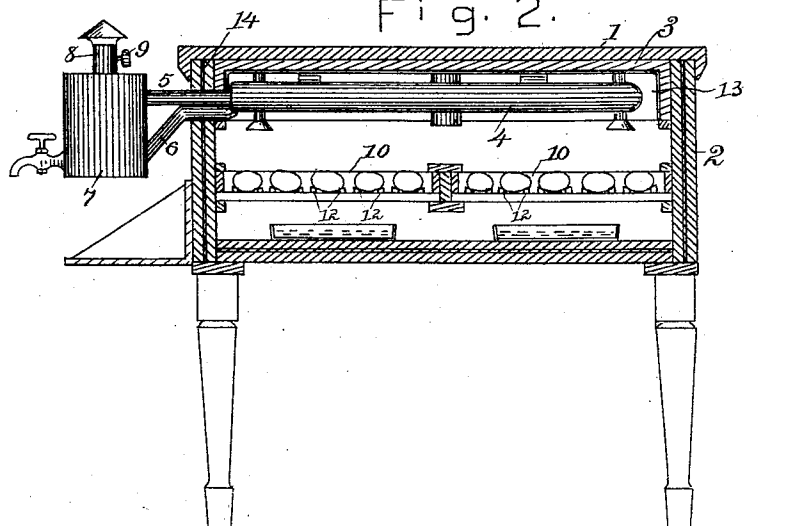


Fig. 2.



ATTEST

Helen Graham
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by his attorney
L. P. Graham

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

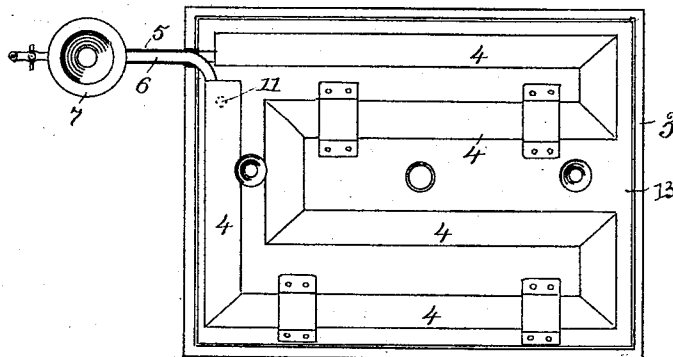


Fig. 4.

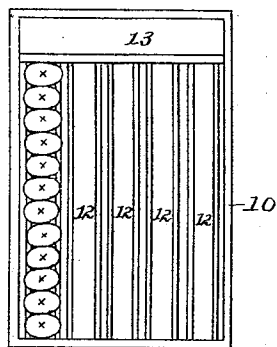


Fig. 5.

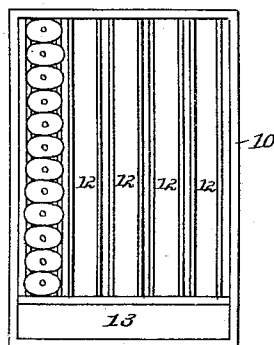
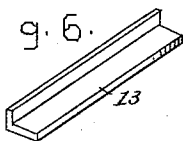


Fig. 6.



ATTEST

Nora Graham.
Ana Graham.

INVENTOR

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UNITED STATES PATENT OFFICE.

LOUIS KUHNER, OF DECATUR, ILLINOIS.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 484,325, dated October 11, 1892.

Application filed June 10, 1892. Serial No. 436,204. (No model.)

To all whom it may concern:

Be it known that I, LOUIS KUHNER, of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Incubators, of which the following is a specification.

This invention relates to the heating and egg-turning features of incubators; and it is embodied in the details of construction and combinations of parts hereinafter set forth and claimed.

In the drawings forming part of this specification, Figure 1 is a plan of an incubator containing my improvements. Fig. 2 is a section of the same on broken line X in Fig. 1. Fig. 3 is a representation of the under side of the heating apparatus. Figs. 4 and 5 are plans of an egg-drawer under different conditions, and Fig. 6 is a perspective representation of the removable egg-stop of the egg-drawers.

The top 1 of the incubator-box 2 is removable, as is also the casing 3 of the heating-pipe 4. The heating-pipe is of zigzag formation in a horizontal plane, it is secured in the casing, and it connects at its ends with jacket 7 by means of pipes 5 and 6. The ends of pipe 4 are so disposed that connection 5 lies over connection 6, and both require but a small opening through the box. The casing 3 is in the form of an inverted coverless box, and its interior is lined with metal, as seen at 13. The box has a slot to admit the connection-pipes, and such slot is closed when the pipes are in place by means of a removable part, (seen at 14 in Fig. 2.)

The heat-jacket 7 is annular in horizontal section to admit a lamp or other heater, and its internal wall tapers upward. It is provided at its upper end with vent 8, in which is placed a controlling-valve 9.

The egg-drawers 10 have strips, as 12, extending lengthwise or in the direction of the motion of the drawers, and each pair of such strips are adapted to support a row of eggs laid lengthwise from strip to strip, as seen in Figs. 2, 4, and 5 of the drawings. In the end of each drawer is placed a removable egg-stop 13, and such stop has a width equal to one-half the circumference of an egg. The eggs are laid on the strips, as seen in Fig. 4, except that all the strips are supplied, and

the egg-stop is placed in the inner end of the drawer. When the eggs are to be turned, the drawer is drawn well out and the outer end is raised somewhat and the stop carefully removed. This permits the eggs to each make a semi-rotation, bringing up the side that was formerly down, and subsequently the stop is placed in the opposite end of the drawer, as seen in Fig. 5, and the drawer is shoved back to place. At the next turning the drawn-out end of the drawer is depressed instead of elevated, and so on alternately. In addition to the strips the egg-drawers may be provided with a sheet of wire-cloth under the strips, which will assist in supporting the eggs.

In Figs. 4 and 5 the eggs are shown with an "X" on one side and an "O" on the other, and such marking is advantageous in practical use in order to show whether the turning is completely and properly done.

The pipe 4, together with the connections 5 and 6 and jacket 7, is filled with water, which may be poured into an opening in the jacket, and heat is supplied by a heater on the platform under the jacket. As the pipe becomes heated it radiates from all sides, and the metal lining of the casing reflects the heat in such manner that most economical results are attained. A steam-vent is placed in the return end of the water-pipe, as seen at 11, Fig. 1, in order that steam when developed may be utilized before it is exhausted.

As the entire heating apparatus is contained in the removable and open-bottomed casing, it is easily constructed and repaired and access may always be had for purposes of investigation.

With the exceptions noted the incubator may be constructed in any desirable manner, the ordinary details necessary to complete the device being well known to persons skilled in the art.

I claim—

1. In incubators, the combination of the removable casing 3, adapted to be placed above the egg-drawers, the pipe 4, secured in the casing, the heat-jacket 7, and the pipes 5 and 6, connecting the jacket with opposite ends of the pipe 4, substantially as set forth.

2. In incubators, the combination of the removable metal-lined casing 3, adapted to be placed above the egg-drawers the pipe 4, se-

cured in the casing, the heat-jacket 7, and the pipes 5 and 6, connecting the jacket with opposite ends of the pipe 4, substantially as set forth.

- 5 3. An incubator-drawer having egg-supporting strips lengthwise of the motion of the drawer and a removable egg-stop in an end of the drawer and having a width equal to

one-half the circumference of an egg, substantially as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

LOUIS KUHNER.

Attest:

I. D. WALKER,
L. P. GRAHAM.