(No Model.)

G. B. RANKIN.

INCUBATOR.

No. 344,200. Patented June 22, 1886.

Fig. 1.

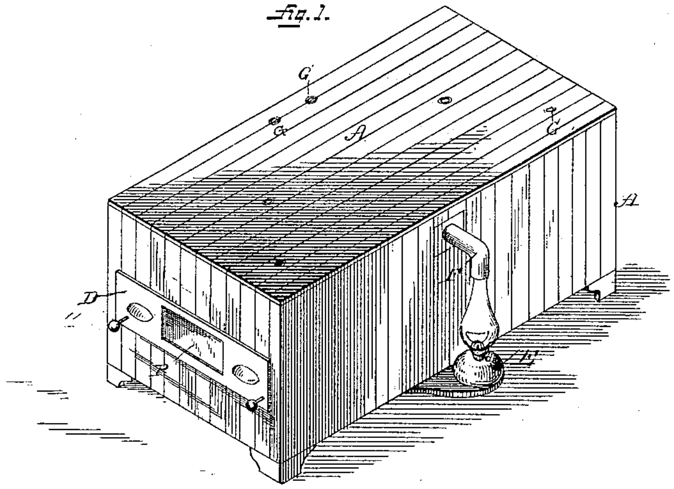


Fig. 2.

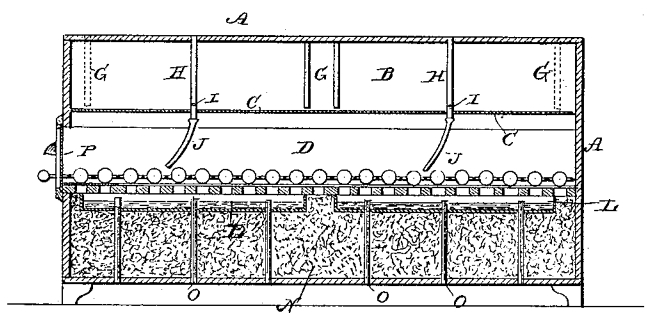
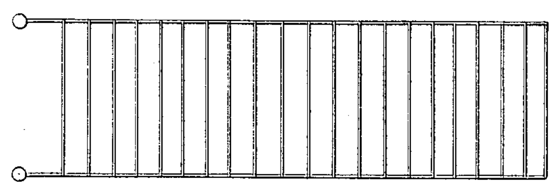


Fig. 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

GEORGE BONNYMAN RANKIN, OF WAUKEGAN, ILLINOIS.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 344,200, dated June 22, 1886.

Application filed September 30, 1885. Serial No. 178,614. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BONNYMAN RANKIN, of Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Incubators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in incubators; and it consists in, first, the combination of an incubator having a hot-air chamber extending over the entire top of the incubator above the egg-chamber, with a lamp, the pipe which conducts the heated air into the top of the air-chamber, and a series of ventilating-pipes which extend from near the bottom of the air-chamber up through the top; second, the combination of the hot-air chamber, the lamp for heating it, the tubes or pipes which extend entirely through the hot-air chamber and are provided with perforations inside of said chamber, and the flexible tubes which are connected to the lower ends of the pipes; third, the combination of the frame, the cold-air pipes which extend up through its bottom, the tray or drawer, the hot-air chamber, the perforated pipes which pass through it, and the flexible pipes connected to their lower ends.

The object of my invention is to produce an incubator in which the atmosphere will remain constant without the use of valves, electric appliances, or other costly devices for regulating it, to ventilate the egg-drawers, so as to keep the eggs always in a pure atmosphere, and to fill the water-pans from above without the necessity of having to remove them for that purpose.

Figure 1 is a perspective of an incubator embodying my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a plan view of the rack for turning the eggs.

A represents the frame of the incubator, which will be of any shape or size that may be preferred, and in the top portion of which is formed the hot-air chamber B. The bottom of this chamber is formed by the sheet of zinc C, which approaches to within any desired distance of the top of the egg-drawer D. This chamber B is heated by means of an ordinary lamp, E, which has a pipe, F, placed over the top of its chimney, and which pipe conducts the heat from the lamp directly into the chamber B.

Passing down through the top of the frame A are a number of ventilating-pipes, G, which are distributed around, either in the manner shown in Fig. 1 or in any other way that may be preferred, the object being to place them in such relation to each other that they will ventilate every portion of the hot-air chamber B alike. Were only a single large pipe used for ventilating this chamber, the bottom of the chamber would be coolest immediately around the pipe and hottest at those points which are farther removed therefrom. These pipes G descend to within a very slight distance of the bottom C of the chamber and serve to allow the surplusage of heated air to freely escape through them. The chamber B, having the bottom heated by the heated air from the lamp E, sheds a portion of this heat down through the zinc bottom C upon the tops of the eggs in the usual manner.

Extending down and entirely through the chamber B are the tubes or pipes H, which have slight perforations I made in them just above the top of the bottom C, so that enough hot air from the chamber can pass through the perforations I to cause an upward draft through the tubes H, and thus cause a suction through the flexible tubes J, which are connected to the lower ends of the pipes H below the bottom C. These flexible tubes J are long enough to extend down and rest directly upon the tops of the eggs, and thus serve to draw away any impure gases or air which may be in contact with the eggs. These tubes J are made flexible, so that they will readily slip over the tops of the eggs without injuring them, and so that they will allow the drawer D to be moved freely back and forth at all times. The draft through these pipes H is sufficient to suck away all of those gases which may be in contact with the eggs, and which would have the tendency to poison the unhatched chickens. The tubes H J also serve to fill the water-pans L after the drawer D has been drawn out sufficiently far to allow the water to pass

freely from the ends of the tube J without running over the eggs. While the water is being poured into the pans a funnel will be applied to the upper end of each tube H while its respective pan is being filled. The water-pans L are supported in position just under the drawer B by means of sawdust, earth, or any other non-conducting substance which is placed in the bottom of the frame A. Passing up through this bottom chamber, N, are a number of small tubes or pipes, O, which reach up to within a short distance of the bottom of the drawer D and serve both to admit fresh air just under the eggs and at the same time to permit carbonic-acid gas to escape through them. It will be seen that fresh air is introduced just below the eggs and foul air is drawn away from the eggs just on a level with their tubes, thus insuring that the eggs shall be kept in pure air at all times. The drawer has its bottom formed of strips of wood which extend across from side to side, and upon the top of which strips is stretched a piece of canvas, burlap, or other material. In each drawer there is placed an endwise-moving rack, by means of which the eggs are all turned at once without the trouble of having to open the drawer for that purpose. Through the end of each drawer is made a window, P, of any suitable construction, so that the thermometer, which is placed upon the tops of the eggs, can be seen at all times without having to pull open the drawer for the purpose of inspecting it.

I am aware that a hot-air chamber above the egg-tray connected to and heated by a lamp and having perforations through its lower portion, so as to admit cold air direct, is not new, and this I disclaim.

Having thus described my invention, I claim—

1. The combination of an incubator having the hot air chamber B extending over the entire top of the incubator above the egg-chamber, with a lamp, the pipe F, leading into the top of the air-chamber, and the series of ventilating-pipes G, which extend from near the bottom of the air-chamber up through the top, substantially as shown.

2. The combination of the hot-air chamber, the lamp for heating it, the tubes or pipes H, provided with openings I, and the flexible tubes J, substantially as described.

3. The combination, in an incubator, of the frame, the hot-air chamber, and the tray or drawer, with the flexible pipes J, connected at their upper ends to the pipes H, and the pipes O, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE BONNYMAN RANKIN.

Witnesses:

FRANK C. LOOMIS,

MOTTLE C. U. KIMBELL.