

F. C. PERKINS & C. Z. DAVIS.
INCUBATOR.

APPLICATION FILED MAY 13, 1907.

931,142.

Patented Aug. 17, 1909.
2 SHEETS—SHEET 2.

FIG. 3.

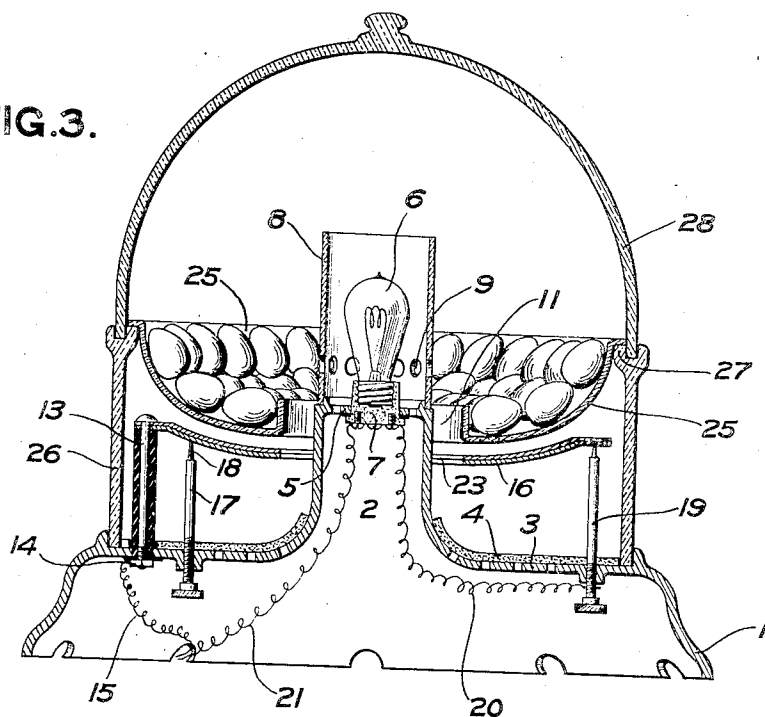
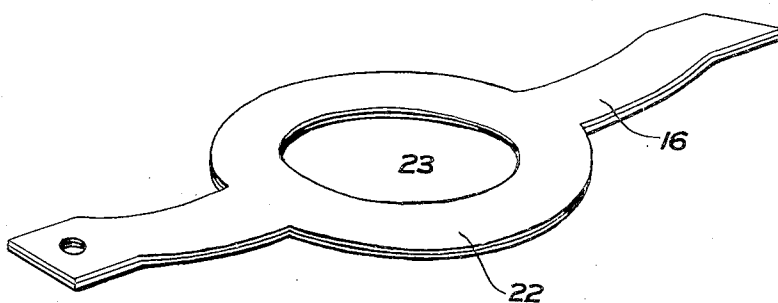


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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INCUBATOR.

No. 931,142.

Specification of Letters Patent.

Patented Aug. 17, 1909.

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To all whom it may concern:

Be it known that we, FRANK C. PERKINS and CLARENCE Z. DAVIS, citizens of the United States, and residents of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Incubators, of which the following is a specification.

This invention relates to incubators, and consists in the apparatus hereinafter described and claimed.

The object of the invention is to provide an incubator for exhibition purposes, in which all parts are visible from the exterior, and the hatching of the eggs, and, if desired, the brooding of the chickens may be conducted in full view.

A further object of the invention is to provide a simple, effective and compact incubator.

In the drawings:—Figure 1 is a vertical section through an incubator embodying this invention, taken on the line 1—1 of Fig. 2; Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical section taken on the same line as that on which Fig. 1 is taken, showing a slightly modified form; and Fig. 4 is a perspective view of the thermostatic element employed.

In the drawings, a base 1, which may be of cast iron or of other suitable material, has a central, hollow, upwardly projecting standard 2, and, adjacent to said standard, horizontal portions 3 that are perforated for the passage of air. Over the perforated portions 3 is set a layer of fabric 4, which may be felt, or may be one or more layers of burlap, according as conditions indicate; that is to say, in cold weather, or in exposed situations, it is advisable to use a thicker material through which air will pass with less freedom, while in warm weather, and in unexposed situations, a thinner layer of fabric may be employed. The upper part of the standard 2 has a horizontal perforated portion 5, in the center of which is held a suitable electric heating device. In the present instance this heating device is an incandescent lamp 6, which in the ordinary way is screwed into a lamp socket 7 that is held in the horizontal base portion 5 above mentioned. Around the heater or lamp 6 may be a chimney 8 having perforations 9 near its base. This chimney may be transparent or translucent if light is desired, or may be

opaque if light is not desired from the lamp 6.

From a suitable part of the apparatus is supported the egg tray or nest 10. This may be of glass (which is the construction shown herein), or other suitable material, as desired. The said nest or egg tray is concave or bowl-shaped, and has an opening around its center and a rim 11 projecting upward around said opening. The rim 11 prevents the eggs from sliding down into, or projecting over, said opening. In Fig. 1 brackets 12 attached to the outside of the standard 2 project under the edge of the perforation in the nest 10, and support it. These brackets, of course, leave a large space between them so that chicks when hatched may drop through the opening and down into the space under the nest.

Upon the base, and under the nest 10, is an insulated standard 13 having a binding screw 14 for a conducting wire 15 at one end, and to the other end is fastened the thermostatic element 16, which is a bar composed of strips of two metals having widely different coefficients of expansion. The two strips are fastened together in any suitable way, and are frequently so fastened by soldering. Increase of temperature causes a bending of the strips in one direction, and decrease in temperature causes bending of the strips in the opposite direction. An adjusting screw 17 passing through a portion of the base, and bearing against the under side of the thermostatic element, is provided for adjusting its position. This adjusting screw is the coarse adjustment. It has an insulated point or bearing portion 18 to prevent current being taken from said thermostatic element. At the other or free end of the thermostatic element is a contact screw 19, which may be used for fine adjustment, which is connected with a wire 20 that leads to the lamp socket 7; and a wire 21 leads from said lamp socket and passes out from the incubator. The wires 15 and 21 are connected with any suitable source of electric current. They may be connected with an ordinary electrolier or electric light socket, and thus may use street current for the purpose of operating the incubator. In order that the thermostatic element may have a uniform action, it may be formed of a ring 22, having its opening 23 as large as, or larger than the opening inside the rim 11 of

the nest 10, and the opening 23 may be placed under the opening through the nest, so that chicks will fall through both openings in passing from the nest to the brooder chamber beneath it.

A cover 24 incloses the thermostat and brooder chamber and the nest 10. The said cover rests upon the base 1, and incloses the perforated section 3 of said base. Preferably the cover 24 is entirely of a transparent material, such as glass, but it is obvious that it may be partly of a suitable transparent material and partly of other material. In the structure shown in Fig. 1, the cover 24 is substantially hemispherical at its top, and has cylindrical sides from the upper edge of the nest down to the point where it rests on the base.

The operation of this device is as follows:—Current passes in by the wire 21, through the lamp 6, thence from the lamp by wire 20 through the post 19, and, if the thermostatic element 16 is in contact with the post 19, current will pass through the post 19 and wire 15. When this connection is complete, the lamp will be lighted and the air inside the chimney 8 (if the chimney is used) will be heated and will rise through the chimney, thus drawing fresh air in through the perforated portion 5 of the standard 2, and also drawing air in through the perforations 9 in the chimney, thus causing a circulation in the egg chamber. It may here be noted that the cover 24 should fit quite closely around the edges of the nest 10, so that the circulation of air will be limited, as herein described. As fresh air enters through the perforations in the perforated portion 5, the corresponding amount of air will be displaced from above the nest and will pass downward through the hole in the center of the nest, and thence out through the perforations 3 in the portion of the base. When the temperature in the incubator rises above a selected limit, the thermostatic element 16 will automatically bend so as to break contact with the post 19, and thus the current through the lamp will be interrupted and the light will go out; and the heat in the incubator will be reduced until the selected temperature has been reached again, at which time the thermostatic element will bend in the opposite direction and will make contact with the post 19, the circuit of the lamp will be made again, the lamp will be relighted, and the heating of the incubator will be resumed. As above stated, when the chicks hatch, they will drop down into the portion of the device that is underneath the nest, and there will be warmed by the descending warm air until it is time to remove them.

It is quite clear that the chimney 8 may be dispensed with, and that then the heat of

the lamp will cause the air to rise from it, and will thus cause induction of some fresh air, although the use of the chimney is preferable.

In Fig. 3 is shown a slightly modified form of the device, having most of its parts identical with that shown in Figs. 1 and 2. The only difference between the two structures is that in Fig. 3 the nest 25 is not supported at its center, but at its outer edge. In this case the cover may be divided into two parts, namely, a cylindrical part 26 which rests upon the base 1, and has inward projections 27 on which the outwardly projecting rim of the nest can rest. The upper part of the cover 28 rests upon the lower portion 26, and the two together form a tight cover. Either or both may be made of transparent material. In this form of the device, the cover 28 may be removed after hatching begins, and egg shells, or infertile eggs, may be removed while the chicks are still confined in the "nursery" beneath the nest.

What we claim is:—

1. In an incubator having an air-tight upper part, an egg tray within the upper part adapted to permit the passage of air therethrough, an electric heater supported over the center of the egg tray, a thermostatic controller adjacent to the egg tray, and means beneath the egg tray for admitting and discharging the air.
2. In an incubator, a base having a central standard, a transparent cover, an egg tray supported under said cover and above said base, a heater upon said standard, and a thermostatic controller for said heater.
3. In an incubator, a base having a hollow standard perforated at its top, a transparent cover, an egg tray supported under said cover and above said base, a heater supported upon said standard and above said egg tray, and a thermostatic controller for said heater.
4. In an incubator, a base having a central standard, a transparent cover, an egg tray supported above said base around said standard and having an opening therein around the standard, a heater supported above said egg tray, and a thermostatic controller under said cover for controlling said heater.
5. In an incubator, a base having a central standard, a transparent cover, a concave egg tray supported under said cover and above said base and having an opening therein around the standard, a heater supported above said egg tray, and a thermostatic controller under said cover for controlling said heater.

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Witnesses:

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