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METHOD OF AND ELEMENT FOR HEATING HOVERS

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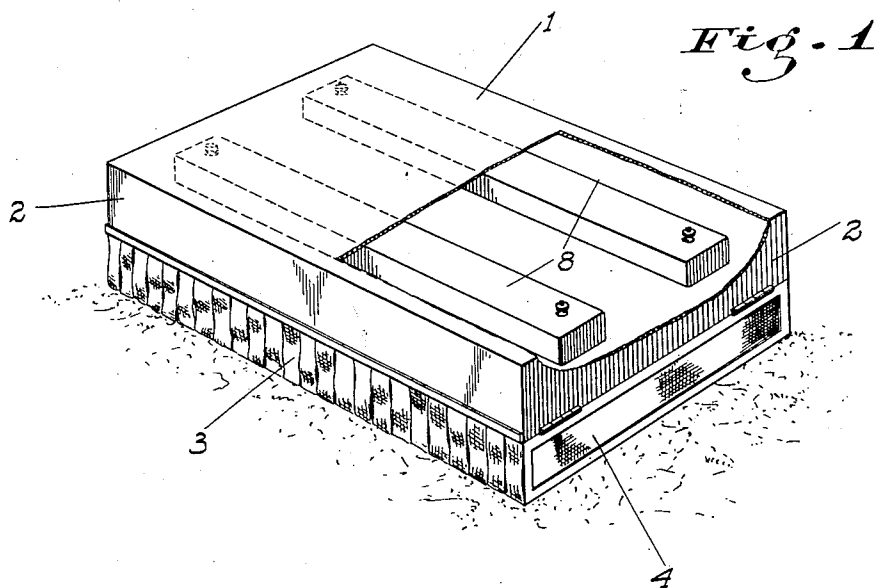
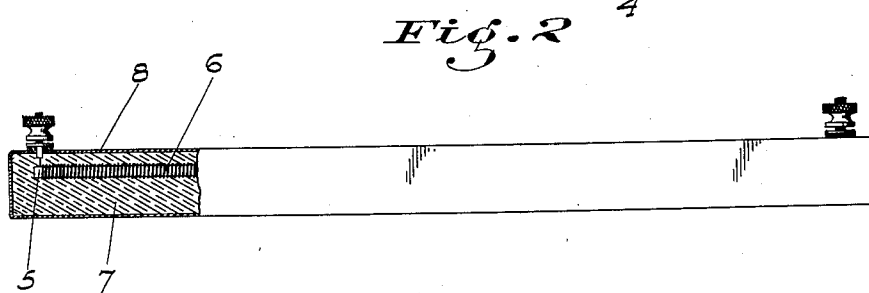
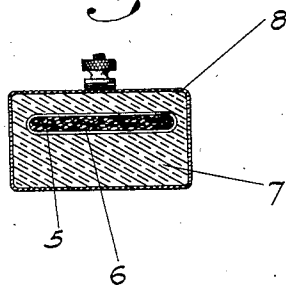


Fig. 3



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METHOD OF AND ELEMENT FOR HEATING HOVERS.

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This invention relates to improvements in electrically heated chick hovers or brooders, and particularly to an improved method of applying the heat and to an element by means of which the method may be most efficiently carried out.

In all electrically heated hovers, as far as I am aware, the manner in which the heat is applied causes the chicks to be sweated. This is of course a highly undesirable feature, and has caused electrically heated hovers generally to be condemned and discarded by the users thereof after a trial.

At the same time electric heat is clean, easily controlled and has inherent and undisputed advantages over other forms of heating means, if only the sweating was eliminated.

From observation and experiment I have come to the conclusion that this sweating action is caused by the fact that in all these previous devices, the elements are of small capacity, and must be heated to an intense degree to provide sufficient heat for their purpose. The elements being bare, air coming into contact therewith causes a sweating vapor to be formed which descends onto the backs of the chicks.

The principal object of my invention therefore is to eliminate the formation of any sweating vapors by an improved method of applying and distributing the heat.

In general this method consists in providing heating elements having a great radiating surface so that the degree of heat in the elements may be kept very low, in preventing direct contact of the elements with the air, and in locating the elements in the hover in such a manner that the heat is first radiated to the top of the hover, and the amount of heat is then gradually increased and caused to descend onto the backs of the chicks.

Heat storage is also provided so that in the event that the current is accidentally turned off, heat will still be supplied to the hover for some time.

In connection with this method I employ a special form of element which I have designed for the purpose, and by means of which the above named objects of the invention may be very efficiently carried out.

A further object is to provide a simple

method for the purpose, and a simple inexpensive and efficient element for use in connection with such method.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a perspective view of a hover, the top being broken out to show the location of my heating elements therein.

Fig. 2 is a longitudinal view of an element, detached from the hover and partly in section.

Fig. 3 is a cross section of the element.

To illustrate my method and the application of the heating element thereto, I show a hover in Fig. 1. This may of course be of any suitable construction, but I preferably use one having a non-formanious top 1, and similar sides 2 extending down from the top to a point short of the floor or ground. Along the front side of the hover and depending therefrom to the floor are flexible flaps or curtains 3 to allow the chicks to enter and leave the hover. Correspondingly disposed with respect to one or more of the other sides is a hinged frame 4 adapted to be raised or lowered.

This construction permits of the proper retention of the heat, while allowing of adjustment for ventilation and other purposes.

My invention deals not with any particular type of hover but with the method of electrically heating the same.

As previously stated, my method lies in heating the hover in such a manner to avoid sweating of the chicks, by mounting non-exposed heating elements in the hover of such large heat radiating surface as to enable a large volume of air to be gradually and evenly heated, while maintaining the elements at a relatively low temperature. Coincident with the heating of the air a quantity of heat is being gradually stored up so as to be available in the event that the current goes off.

To carry out my method I have designed an element constructed as follows:

A core 5 preferably a flat rigid piece of asbestos or the like is used on which to wind

the heating wire 6 which extends from end to end of the core. The heating element thus formed is embedded in a rectangular block 7 of fire-clay or the like which is then
 5 baked, the block being preferably enclosed in a metal jacket 8 which prevents moisture from possibly permeating the fire-clay.

The element is disposed in the block so that it is closer to the top than to the bottom as shown in Figs. 2 and 3. Fire-clay is preferably used in making the block, as this has good heat conducting and retaining qualities, besides being an insulating means.

Owing to this arrangement it will be seen
 15 that the heated radiating surface actually in contact with the air is much greater than that of the element alone.

The element containing blocks are suspended in any suitable manner from the top
 20 of the hover and a short distance under the same, in such a manner that the strip 5 lies horizontally and is adjacent that face of the block which lies nearest the top of the hover.

To obtain the best results I have found
 25 that the surface area of the element blocks should approximate that of the top of the hover, and the number of elements employed in any hover depends of course on the comparative size of the block relative to the
 30 horizontal area of the hover. If a plurality of elements are used they are spaced apart so that air has free contact with the entire outer surface of the blocks.

In operation with this relative proportion
 35 of parts I have found that a temperature of 200° maintained in the elements and blocks is sufficient to adequately heat the hover and maintain the same heated without the slightest tendency to the creation of a
 40 sweating vapor.

The elements being disposed nearer to the top than to the bottom of the blocks the upper portions of the latter become heated first, causing the heat to be radiated first to the
 45 top of the hover.

The heat thus initially radiated is gradually augmented as the blocks become heated throughout, so that the heat gradually works down from the top of the hover toward the
 50 bottom thereof where the chicks are gathered.

The heat will then be radiated evenly from the entire surface of the blocks, so that a large volume of air is subjected to an even heating action. By the time the heat is being
 55 radiated from all the faces of the blocks, sufficient heat is stored in the latter to enable

the radiation of heat therefrom to continue a considerable time after the current is turned off or is unintentionally discontinued. This is in contrast to the small elements ordinarily used which cool off almost instantaneously as soon as the current ceases to flow through the same.

The enclosing of the heating elements in fire proof material not only provides for the desired heat storage and increase in radiating surface in contact with the air, but greatly increases the likelihood of fire which might be caused by contact of any inflammable materials with the bare wires. A
 65 hover equipped with my elements is therefore much safer to use than those as now constructed, and would command materially lower insurance rates.

It is of course to be understood that suitable switch and thermostat control means would be installed on the hover in connection with the elements. Such features however are already commonly used and form no part
 70 of my invention.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail
 85 the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A heating device for hovers comprising an electric heating element, one face of which
 95 is substantially flat, and a block of non-electrical heat conducting and radiating material completely enveloping the element in non-centralized relationship; said block having a flat face parallel and close to the flat face of the element, and the area of the latter face being but slightly smaller than the adjacent face of the block whereby when the element is heated the heat from the upper surface of the element will be almost immediately transmitted evenly to substantially the entire area of the flat face of the block.

2. A structure as in claim 1, with a metal jacket in which the block is enclosed.

In testimony whereof I affix my signature.

HARRY O. CUNARD.