

Dec. 23, 1941.

W. M. WILLETT ET AL

2,266,934

SPRAYPROOF HOVER

Filed Aug. 16, 1940

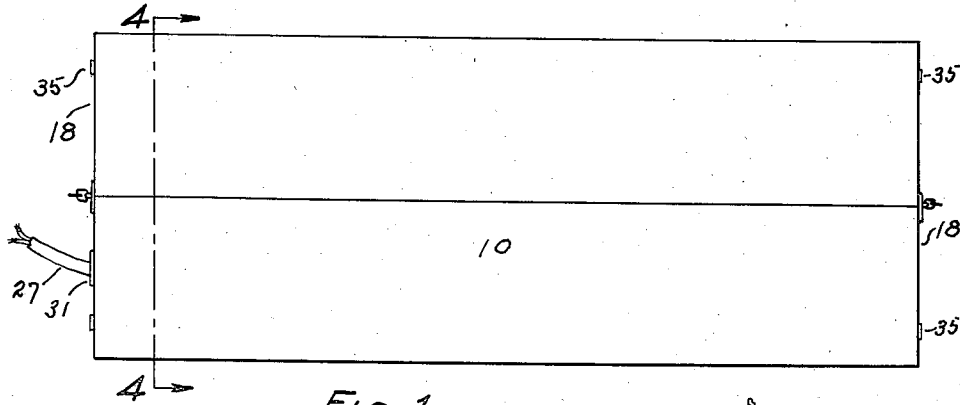


FIG 1

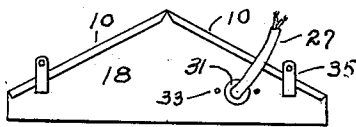


FIG. 2

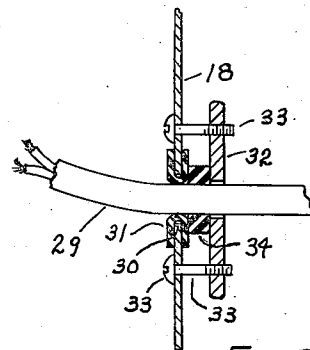


FIG. 3

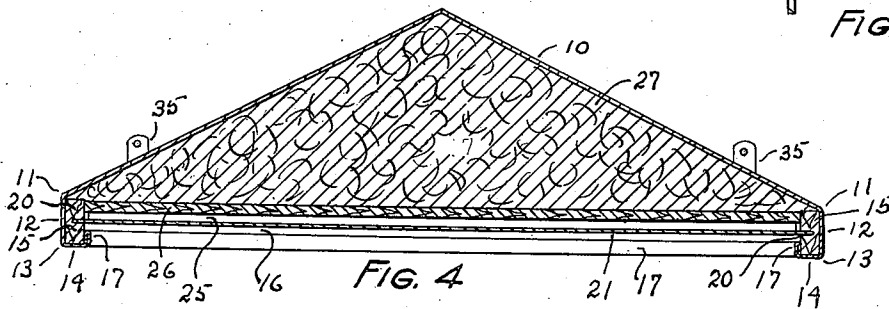


FIG. 4

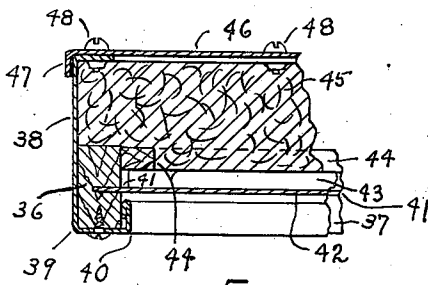


FIG. 5

INVENTORS
 WILLIAM M. WILLETT
 JOHN B. OLSON
 GEORGE T. MARKEY
 BY *A. S. Krotz*
 ATTORNEY

UNITED STATES PATENT OFFICE

2,266,934

SPRAYPROOF HOVER

William M. Willett, John B. Olson, and George T. Markey, Fort Atkinson, Wis., assignors to James Manufacturing Company, Fort Atkinson, Wis., a corporation of Wisconsin

Application August 16, 1940, Serial No. 352,876

4 Claims. (Cl. 119—33)

The present invention relates to electrically heated hovers for brooding chicks and is particularly adapted for use in what is commonly called battery brooders.

In the present invention, it is customary to provide a brooder of the type midway the inclosure, the brooder being usually suspended from the ceiling of each inclosure and held in a position which will give plenty of room for the chicks to gather under the brooder.

The custom is to supply the space under the brooder with enough heat for the chicks while they are resting. The space around the brooder is large enough so the chicks can exercise and pass into zones having a lower temperature suitable for drinking, eating and exercising.

In battery brooders of the class, particularly in large establishments, sanitary conditions are very important, however in establishments of the kind, it would not be practical to scrub and clean every part of the brooder and hover as is possible when but few chicks are involved.

Recently it has been the custom of poultrymen to economically and quickly disinfect the equipment by spraying water which contains a suitable disinfectant over the equipment.

In some brooders, the water spray method is successful but it has been found that it is impractical for electrically heated hovers and since the hovers cannot easily be removed from the battery for separate treatment, there appears to be a demand for an electric hover which is spray proof. In fact, such a device should, of necessity, be practically water proof, that is, proof against injury to the electric installation.

A hover, to be spray proof, must be practically surrounded by sheet metal. Therefore in order to prevent excessive loss of heat, the plate through which the heat is transferred downwardly into the space occupied by the birds cannot have metallic contact with the housing. We therefore provide simple and novel means whereby the heat transfer plate is electrically insulated and heat transfer insulated from the housing.

We provide novel means for insulating and water proofing the cable from the metal end of the hover, through which the cable extends.

An important feature of the present invention is the mass of insulating material provided between the electric heating pad and the top of the hover and the form of the hover whereby the cheapest insulating material may be used as a filler.

To these and other useful ends, our invention consists of parts, combinations of parts, or their

equivalents, as hereinafter set forth and claimed and shown in the accompanying drawing in which:

Fig. 1 is a top view of my improved hover.

Fig. 2 is an end view of the hover as shown in Figure 1.

Fig. 3 is a sectional view illustrating the manner of insulating and water sealing the opening through which the electric cable extends.

Fig. 4 is a transverse sectional view of the hover, taken on line 4—4 of Figure 1.

Fig. 5 is an enlarged fractional view of a modification, taken on a line similar to Figure 4.

As thus illustrated, our improved hover, as illustrated in Figures 1 to 4 inclusive, comprises a sheet metal gable roof 10, the sides being bent downwardly as at 11—11 forming depending flanges 12—12 which are bent inwardly as at 13—13 forming narrow horizontal flanges 14—14.

We provide wood strips 15—15 and 16—16 forming a rectangular frame which is tightly embraced by members 12 and 14 and the narrow upturned edges 17.

The ends of the hover are formed by means of metal strips 18—18, these strips, at their bottoms, are formed similar to members 12, 14 and 17, so members 16 are embraced similar to member 15.

Members 18, and their lower portions, are suitably bonded to members 10, 12, 14 and 17, so as to form a water tight inclosure for the frame. Frame members 15 and 16 are grooved as at 20 around the entire inner surface of the frame, into which a metal heat transfer plate 21 is positioned, as illustrated in Figure 4.

Plate 21, it will be noted, is positioned a short distance from the inner edges of members 17. Thus this plate is separated from flanges 17 by a narrow heat and electrical insulating space. Therefore the entire interior of the hover is spray tight and the heat transfer plate of the hover is electrically and heat insulated from the remainder of the hover.

We provide, preferably, what is commonly called a blanket electric heating pad 25. This member lies on member 21 and practically fills the space within the frame.

We position preferably an insulating board 26, which lies on member 25. This member is adapted to fit snugly within the frame formed by members 15 and 16. Thus members 10, 12, 14, 17, and 21, cooperating with the frame and member 26, form a rigid, strong but light structure and the heating element is close to a metal plate, through which the heat is transferred downwardly.

Clearly, under some circumstances, member 26

may be dispensed with and cleats used instead, as will hereinafter appear. We preferably fill the space under member 10 with heat insulating material 27 which may be either wood shavings or any other material suitable for the purpose.

We make a connection from the heating pad to the exterior of the brooder by means of a cable 29 and make the opening in plate 18 through which this cable passes water tight as follows:

Opening 30, in member 18, is somewhat larger than the cable. We provide preferably a rubber washer 31 which forms a snug fit around the cable and in opening 30. A plate 32, having an opening slightly larger than the cable is secured to plate 18 by means of screws 33—33.

A rubber sleeve 34 is positioned between washer 31 and plate 32, thus, by tightening screws 33, member 34 will be caused to tightly hug the cable and member 31. Thus a water tight joint is formed between the cable and member 18.

In devices of the kind, it is customary to support them from the ceiling of the inclosure. For this purpose, we provide preferably four clips 35 to which the supporting cables may be attached. The general practice is to run these cables around pulleys and fasten the cables together a distance from each pair of pulleys and extend this fastening through the ends of the battery by means of a chain which extends through key-ways so the operator can disengage the chain and raise either end of the hover at will. This convenience is essential because it is frequently necessary to raise the hover at one end or the other, so as to give the operator a full view of the chicks under the hover.

In Figure 5, we illustrate a modification wherein a wood frame is formed by means of side and end wood bars 36 and 37 similar to the frame formed by members 15 and 16. A metal frame, having side plates 38 fits around this frame and is folded, the lower edge being bent inwardly as at 39 and then upwardly as at 40, the upwardly extending edge being folded double, as in Figure 4.

Members 36 and 37 are grooved as at 41, for the reception of the heat transfer plate 42, this plate being similar to member 21 in Figure 4. An electric heating blanket 43 is provided which is similar to blanket 25.

Blanket 43 is placed on top of member 42 and cleats 44 are secured to members 36 and 37. Cleats 44 take the place of member 26 in Figure 4. After this structure is completed, the insulating material 45 is packed in the inclosure formed by members 36, 37, 38, and 43. Member 38 is flanged inwardly and cover plate 46, having a ange 47, is pressed over the assembly and secured thereto by means of a number of bolts 48.

It will be seen that we have provided a very simple, light, strong, well insulated, efficient and spray proof hover, the preferred form of which is provided with a gable roof, so the chicks will not be able to congregate or roost thereon.

Clearly many minor detail changes may be made without departing from the spirit and scope of the present invention as recited in the appended claims.

Having thus shown and described our invention, we claim:

1. A hover of the class described, comprising a frame, a metal panel, said frame consisting of heat and electric insulating material and having a groove on the inner side thereof for the reception of said panel, an electric heating pad positioned on said panel and a heat insulating panel positioned on said pad, and a metal inclosure, the bottom being adapted to embrace the outside and bottom of said frame, the edge being folded upwardly against the inside of the frame but terminating a short distance from said metal panel, the ends of said inclosure extending upwardly and the sides extending upwardly and inwardly forming a gable roof, the space under said roof being filled with loose insulating material.

2. A hover of the class described, comprising a frame, a metal panel, said frame consisting of heat and electric insulating material and having a groove on the inner side thereof for the reception of said panel, an electric heating pad positioned on said panel, means secured to said frame adapted to hold said pad against said panel, and a metal inclosure, the bottom being adapted to embrace the outside and bottom of said frame, the edge being folded upwardly against the inside of the frame but terminating a short distance from said panel, the ends of said inclosure extending upwardly and the sides extending inwardly and upwardly, forming a gable roof, the space under said roof being filled with loose insulating material.

3. A hover of the class described, comprising a frame, a metal panel, said frame consisting of a heat and electric insulating material and having a groove on the inner side thereof for the reception of said panel, an electric heating pad positioned on said panel, and a metal inclosure, the bottom being adapted to embrace the outside and bottom of said frame, the inner edge being folded upwardly against the inside of the frame but terminating a short distance from said panel, said inclosure extending a distance above said frame forming a chamber above said heating pad and being filled with insulating material.

4. A hover of the class described, comprising a frame, a metal panel, said frame consisting of heat and electric insulating material and having a groove on the inner side thereof for the reception of said panel, an electric heating resistor positioned above said panel and within said frame, and a metal inclosure, the bottom being adapted to embrace the outside and bottom of said frame, the edge being folded upwardly against the inside of the frame but terminating a short distance from said metal panel, an insulating member positioned over said electric resistor, said inclosure being adapted to surround and cover said insulating member.

WILLIAM M. WILLETT.
JOHN B. OLSON.
GEORGE T. MARKEY.