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L. McINTOSH ET AL

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BROODER AND HEATING ACCESSORY THEREFOR

Filed June 1, 1928

2 Sheets-Sheet 1

Fig. 1.

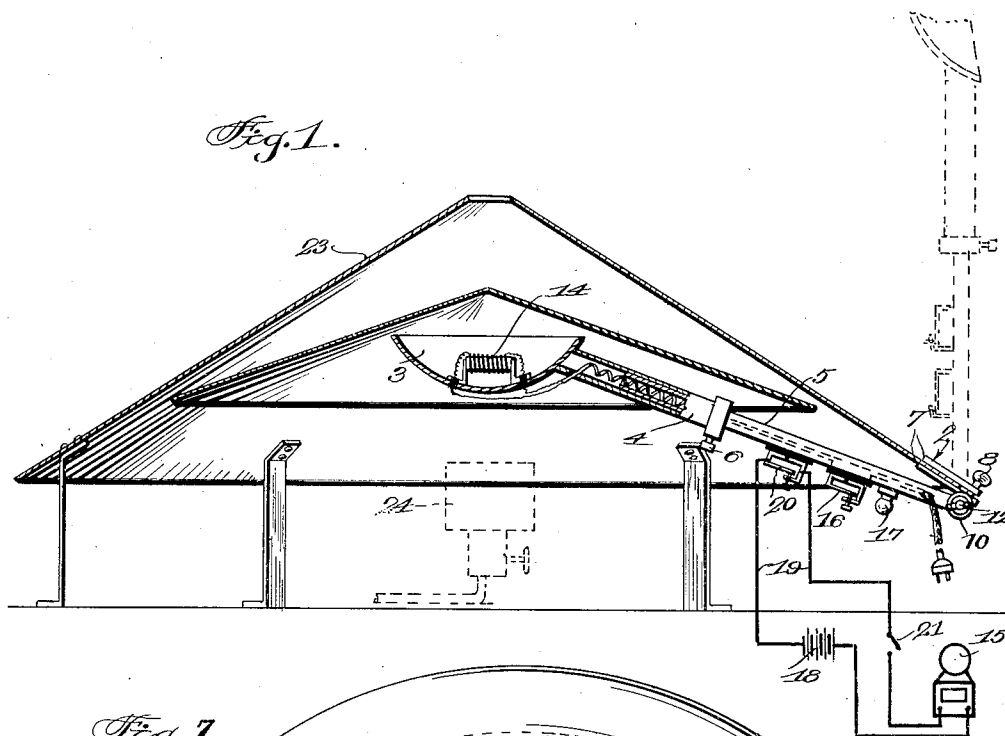


Fig. 7.

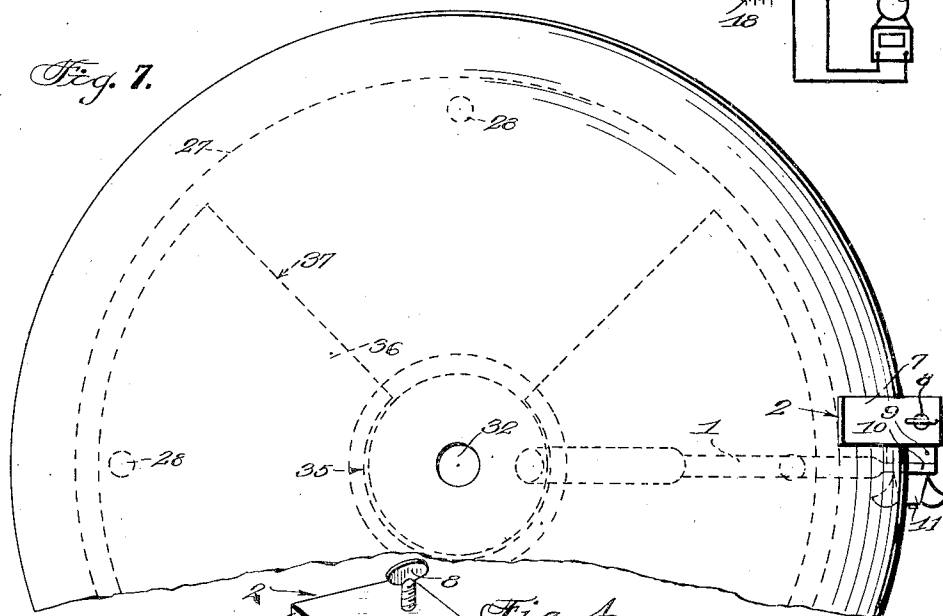


Fig. 4.

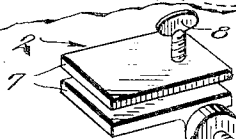
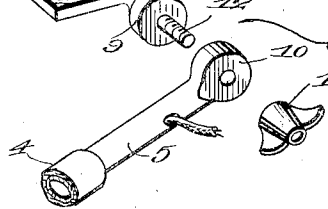


Fig. 5.



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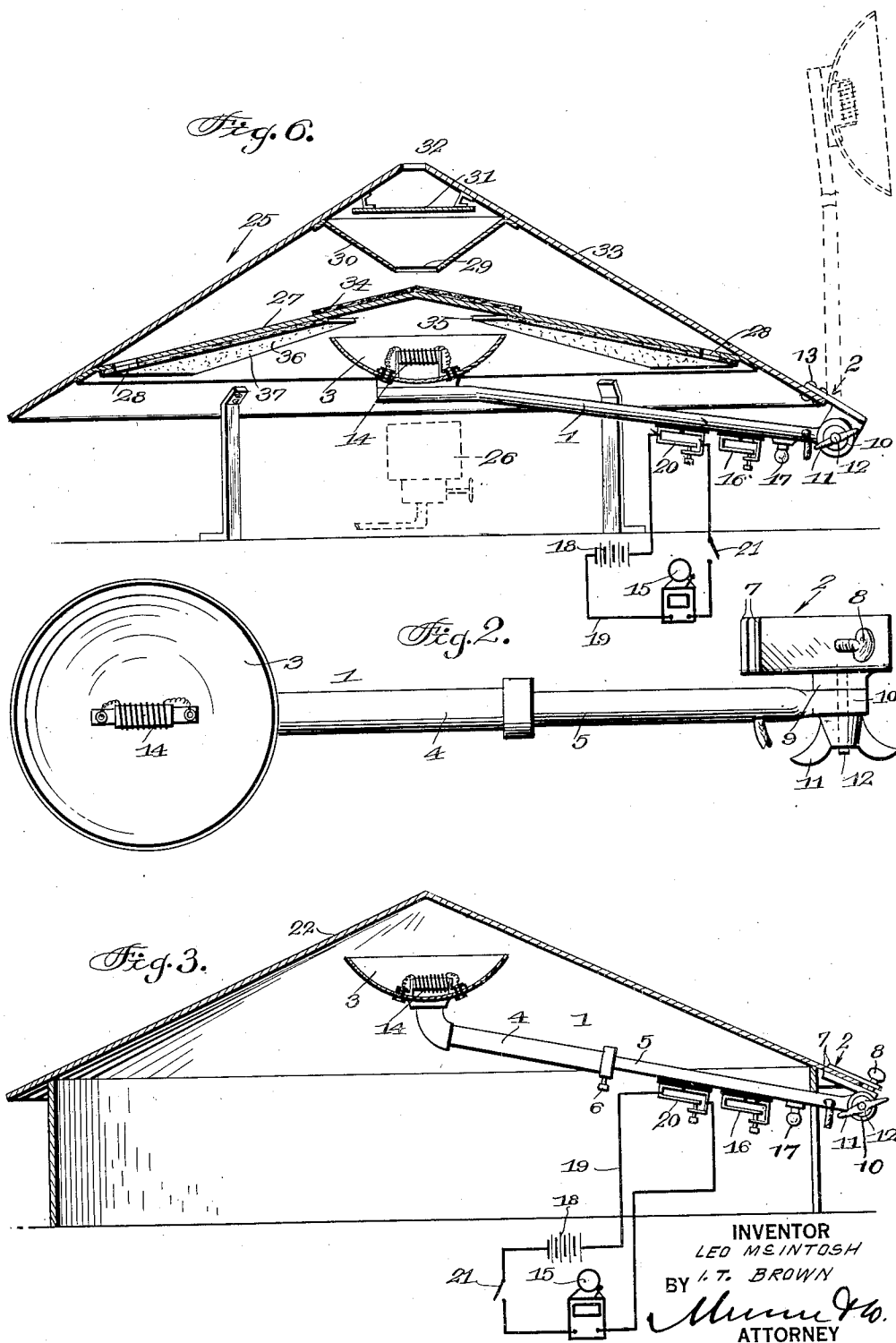
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UNITED STATES PATENT OFFICE

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BROODER AND HEATING ACCESSORY THEREFOR

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This invention relates to improvements in brooders, and it consists of the constructions, combinations and arrangements herein described and claimed.

5 One of the outstanding objects of the invention is to provide a brooder in which either electrical or other heat, as for example from an oil burner, may be had, it being the primary purpose to utilize electrical
10 heat but to make it possible to swing the electrical heater out of position incidental upon failure of the current, and to install an oil burner so that no damage to the brood may result.

15 Another object of the invention is to provide an electrical heating accessory which is capable of permanent installation in a specific type of brooder, or may be made to play the part of an attachment, in which event it
20 may be applied to old brooder canopies, to an inverted tub, packing box or similar receptacle capable of holding a little heat.

Other objects and advantages appear in the following specification, reference being had
25 to the accompanying drawings in which

Figure 1 is a cross section of a brooder, the electrical heating accessory being shown as an attachment which is capable of being removed if desired.

30 Figure 2 is a plan view of the accessory,

Figure 3 is a view illustrating the attachment of the accessory to a receptacle which is to be regarded as selected at random,

35 Figure 4 is a detail perspective view of the clamp,

Figure 5 is a detail perspective view of a portion of the companion arm and the wing nut,

40 Figure 6 is a sectional view of an improved type of brooder in which the electrical heating accessory is permanently installed,

Figure 7 is a plan view of a portion of a brooder, an improved baffle being indicated.

45 Persons engaged in the business of raising poultry are confronted with the problem of continuously supplying the brooder with heat. This problem is doubtless outstanding, and is especially serious during the cold months of
50 the year, because a failure of the heat even

for a relatively brief period will chill the brood with invariably disastrous results.

Among the several types of heat sources, electrical heaters and coal oil burners are
55 foremost. Both kinds have their disadvantages. Oil burners have been known to get too hot and explode thus consuming the brooder house by fire. Electrical heaters are not reliable because the current sometimes goes off for long periods. Often there
60 is no way of telling when the current does go off, so that the poultryman must stand a loss of chicks which might have been prevented.

As has been indicated already, it is a purpose
65 of the invention to combine two heat sources in one brooder, or at least make it possible to instantly switch from one type of heater to the alternative type the moment an occasion for alarm arises. To the fore-
70 going ends, the electrical accessory, which is regarded as the important feature in this application, may be installed either temporarily or permanently in a known type of brooder or in any other receptacle that may
75 be used as a chick hover as brought out in more detail later on.

Reference is made to the drawings. The electrical heating accessory comprises an arm, generally designated 1, having a clamp
80 2 at one end and a reflector 3 at the other end. According to the form in Figures 1, 2 and 3, the arm is composed of telescopic sections 4 and 5, the first being fitted with a set screw
85 6 so that the arm may be adjusted to any degree of extension.

The clamp 2 may comprise any suitable structure by which the accessory may be secured to the edge of a brooder canopy or other hover. It essentially comprises complementary jaws 7 and a thumb screw 8. One
90 of the jaws carries a swivel plate 9 against which a corresponding plate 10 of the arm 1 turns when the wing-nut 11 of the bolt 12 is loosened sufficiently. It is by means of the
95 wing-nut that the arm is secured in either of the two adjusted positions indicated in Figures 1 and 6.

In Figure 6 the accessory differs from the showing in Figures 1 to 5 in that the arm 1
100

is not extensible, in other words, is of a fixed length. The clamp 2 is not of the detachable type, one element thereof, which could be identified as one of the jaws in Figures 1 to 5, being permanently riveted or otherwise secured to the canopy of the brooder as at 13. The other features of the accessory in Figure 6 are to be regarded the same as those already described, the swivel plate 10, wing-nut 11 and bolt 12 being identified.

The electrical features of the accessory may be classed under the heating element 14 and the audible alarm, 15. The wiring of the heating element is coiled within the telescopic arm 1 so that adjustments, particularly extensions of the arm, may be compensated for. It is to be connected with a source of 110-volt current, and includes both a thermostat 16 and red pilot lamp 17.

A battery 18, wiring 19 and thermostat 20 comprise a circuit in which the alarm 15 is located, a switch 21 providing for the opening and closing of the circuit. The thermostat 16 will operate to open and close the heater circuit as often as the temperature within the brooder reaches predetermined limits and as long as the current stays on. But should the heating current fail, the thermostat 20, being of a suitable design, will close the circuit 19 and sound the alarm 15 so that the poultryman may investigate immediately.

It has been stated before that the accessory may be applied to almost any style of hover, and in this connection the term "hover" is meant to describe any form of receptacle under which a brood may be sheltered. For instance, in an emergency the brood may be sheltered under a tub, box or anything that will hold heat, and the accessory may be attached thereto in order to supply the heat.

Figure 3 is intended to illustrate a hover 22 of random selection to a part of which the heating accessory has been attached. This hover may be an inverted receptacle of any suitable kind, for instance a tub, packing box, etc. In order to enable the connection of the heating accessory, one side of the receptacle will be slotted as shown, care being taken to provide a projecting edge of some sort adjacent to the slot. The clamping means 2 is attached to the projecting edge thereby to support its carried arm 1 in line with the slot. The arm will be swung through the slot into the receptacle where its carried heating means is intended to disseminate heat. Figure 1 is intended to illustrate any known type of brooder 23 to which the accessory has been attached. This brooder is regarded as having an oil burner 24.

Figure 6 illustrates a combination of the accessory 1 and an improved brooder 25. Here the accessory and the brooder form a unit. The accessory may be swung into or out of position according to needs, and when

swung out of position as when the electrical current fails, an oil burner 26 will be used to supply heat during the emergency.

The heat from either source 14 or 26 will be directed to the apex of a metallic baffle 27, whence it will be reflected in downward directions upon the brood. There will be a flow of heated air along the underside of the baffle, through holes 28, through the opening 29 of an inverted cone 30, around the edge of a plate 31 and finally out of the central hole 32 of the canopy 33. The truncated cone 30 defines an annular pocket in the canopy 33 in which the heated air is detained.

It is the purpose of the foregoing device to produce a tortuous passage for the heated air so that the heat will be retained within the brooder as long as possible but at the same time afford good ventilation. The former purpose is aided by affixing an asbestos cap 34 over the highest and hottest part of the baffle 27. The rim of the cap will overlap the rim of a circular opening 35 (Fig. 7) in an asbestos sheathing 36 on the underside of the baffle. A sector of the sheathing is cut out as at 37 so that only a relatively small portion of the baffle may be exposed and from which there may be an active reflection of heat. The chief purpose of the asbestos lining 36 is to absorb and in turn to give off heat over a relatively large area thus in effect to cover the brood with warmth. It is desirable to have some more active reflection of heat than afforded by the asbestos, hence the cut out portions depicted in Figure 6.

The operation is readily understood. In all forms of the invention the arm 1 of the electrical heating accessory may be swung on the circle 38 into operative and inoperative positions. The arm is fixed in either adjustment by the wing-nut 11. Upon desiring to swing the arm the poultryman has only to lift one side of the brooder or other hover until the reflector 3 will clear the floor.

Inasmuch as it is preferred to have the user attach the accessory to his old type brooder the arrangement in Figure 1 will be considered at first. Electrical heat is preferred because of its convenience and cleanliness. The accessory 1 will be swung into the full line position shown. The thermostat 16 will control the flow of the 110-volt current to the heating element 14. The switch 21 of the alarm circuit 19 should be closed.

The alarm thermostat 20 should be so adjusted that it will not close the alarm circuit 19 until the temperature drops to a point slightly below the lowest point for which the thermostat 16 has been set. In other words, the opening and closing of the thermostat 16 in controlling the heating element 14 should not affect the thermostat 20.

Should the heating current fail, or any

other part of the electrical heating circuit fail to operate so that danger of chilling the chicks becomes imminent, the thermostat 20 will close the alarm circuits 19 and operate the alarm 15. The poultryman will instantly put the customary heat source or oil burner 24 in operation, but will first swing the accessory 1 out of the burner and adjust it in the dotted line standing position.

10 The pilot lamp 17 is useful in indicating that the electric heater is in operation. It will also serve as a signal to the chicks at night, attracting any to the source of warmth that may have strayed from the brooder. It is not possible to use an oil burner in connection with existing electrical brooders because the electrical parts will not stand a fire heat. Such brooders are therefore subject to the disadvantages already described in respect thereto. The improved brooder is capable of operation under any circumstance.

In that form of the accessory in Figures 1 to 5 in which the arm 1 is composed of telescopic sections, the section 4 may be turned around so that the heat from the resistance element 14 may be thrown directly upon the brood, rather than indirectly by reflection from the baffle immediately thereabove. The form in Figure 6 is not adjustable, and the reflector 3 must be positioned to either throw the heat against the baffle or down upon the brood. The showing in Figure 6 agrees with the former, but the arrangement may be reversed as stated.

35 While the construction and arrangement of the improved combination electric and oil chick brooder is that of a generally preferred form, obviously modifications and changes may be made without departing from the spirit of the invention or the scope of the claims.

We claim:—

1. A heating accessory for an enclosure comprising an arm, a resistance element carried by the arm, means for movably clamping the arm upon a portion of said enclosure, a pair of thermostats carried by the arm to be located within the enclosure when the arm is swung into the corresponding position, an electrical heating circuit embracing one of the thermostats and the resistance element, and an alarm circuit embracing the other thermostat and including an audible alarm.

2. A heating accessory for brooders comprising a resistance element, a reflector upon which it is mounted, a supporting arm including telescopic tubular sections, means for adjusting the sections at various degrees of extension of the arm, a clamp to which one of the sections is swivelled so that the arm may be swung, and a thermostat attached to one of the sections to assume a position within a brooder when the arm is in an operative position, and an electrical heating circuit associated with the thermostat and

resistance element, some of the wiring of which is contained by the tubular arm section.

3. A brooder comprising a canopy with an opening, a metallic baffle within the brooder against which heat from a suitable source may be directed, an asbestos cap on top of the baffle, an asbestos sheathing beneath the baffle having an opening and a cut out sector exposing only a relatively small portion of the baffle, said baffle and sheathing having holes, and an inverted truncated cone interposed between the baffle and the opening defining a tortuous passage for and detaining the heated air escaping at said holes.

4. In combination with any receptacle selected at random capable of being slotted on one side and having a projecting edge adjacent to said slot, an attachable and detachable heating accessory for said receptacle enabling use of the latter as a brood hover, said accessory comprising an arm, clamping means to be attached to said projecting edge to support the arm in line with the slot, means connecting the arm with the clamping means enabling swinging the arm through the slot into the inside of the receptacle, and heating means carried by the free end of the arm.

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