

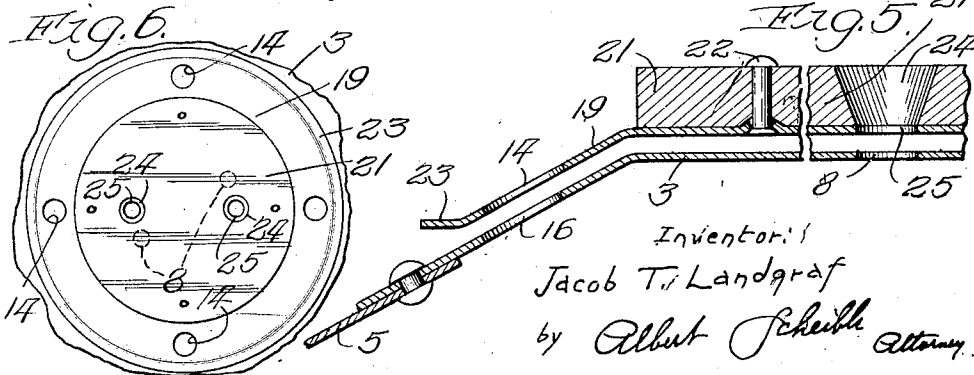
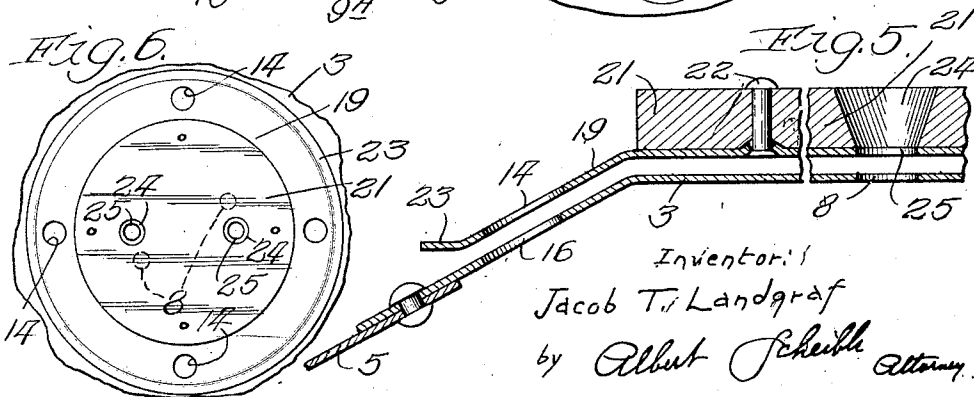
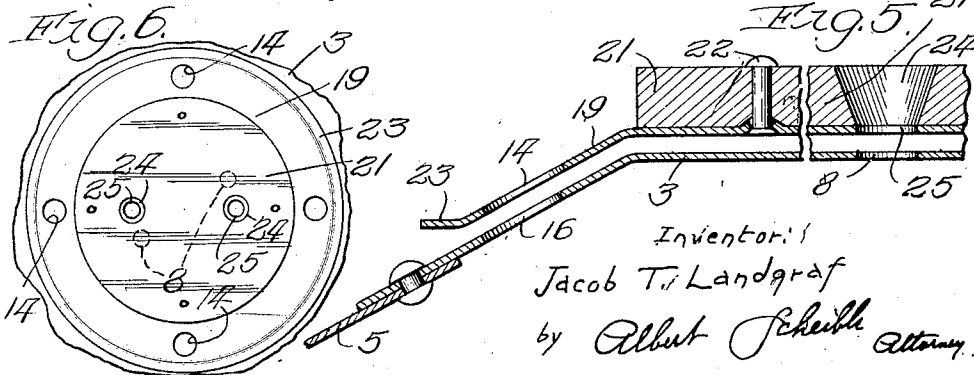
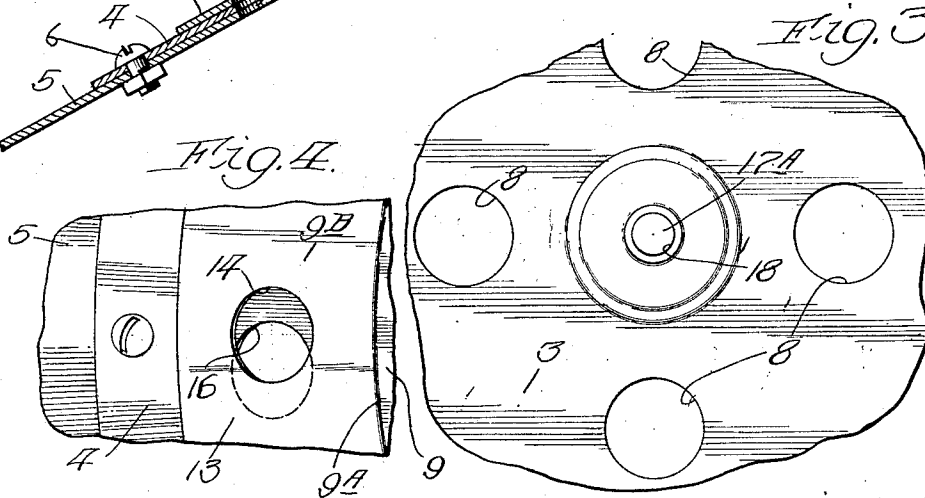
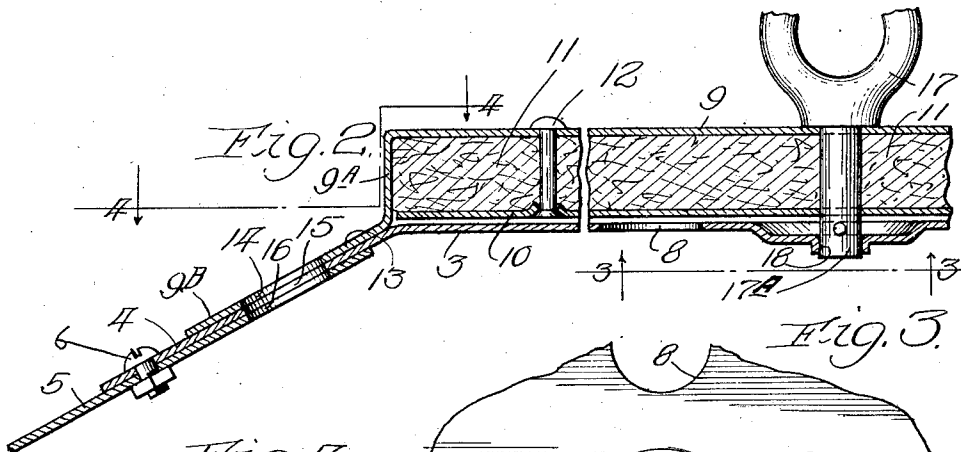
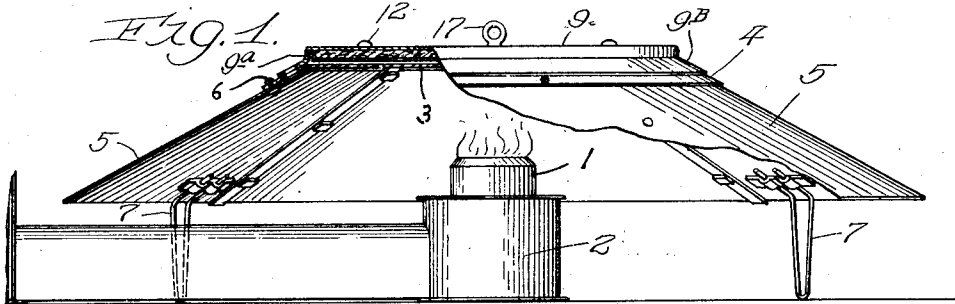
June 12, 1928.

1,673,334

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HOVER FOR OIL BURNING BROODERS

Filed July 25, 1927



Inventor:
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UNITED STATES PATENT OFFICE.

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HOVER FOR OIL-BURNING BROODERS.

Application filed July 25, 1927. Serial No. 208,132.

My invention relates to hovers for chicken brooders, and in its general objects aims to overcome several difficulties encountered in such brooders, particularly when an oil burner is employed as the source of heat.

When an oil burner is used in such a brooder, the intensity and height of the resulting flame varies both with the level of the oil at the burner, the condition of the wick, and the quality of the oil. Consequently, the efficient and smokeless operation of the oil burner demands an occasional inspection of the flame. Since it is advisable to have the hover extend to within relatively few inches of the ground, the user can only see the general condition of the flame by placing his head close to the ground. And even in this inconvenient position, the user cannot note the condition of the wick, as that can only be judged by looking downward into the burner. In view of these difficulties, oil-burning brooders are too often operated inefficiently and without a proper maintaining of the desirable temperature for the chicks under the hover. Allied difficulties have also been encountered with gas-burner brooders owing to the variations in the pressure of the gas.

Moreover, changes in both the atmospheric temperature and in prevailing air currents affect the circulation of air within the brooder, so that it is also difficult to keep this air sufficiently fresh without exposing the chicks to undesirable drafts.

My present invention aims to overcome such disadvantages of customary hover constructions by providing simple and conveniently located means for permitting an inspection of the flame, and by providing simple and easily regulated means for ventilating the hover. Moreover, my invention aims to provide a hover for this purpose which can readily be built in a low and inexpensive form, which will effectively distribute and conserve the upward rays of heat from the burner, and one in which neither the burner-observation provisions nor the ventilating arrangement will interfere with this conserving and distributing of the heat.

Still further and also more detailed objects will appear from the following specification and from the accompanying drawings, in which

Fig. 1 is a fragmentary elevation of an oil-burning brooder embodying my invention, with portions of the hover in central and vertical section.

Fig. 2 is an enlarged central and vertical section through upper portions of the hover.

Fig. 3 is a fragmentary bottom view of the central part of the hover, drawn on the same scale as Fig. 2 and showing the observation apertures in the top member of the stationary portion of the hover.

Fig. 4 is a fragmentary plan view of the hover, showing co-operating ventilating openings in the stationary hover portion and in the rotatable hover canopy.

Fig. 5 is a fragmentary sectional view similar to the left-hand part of Fig. 2 but showing another construction of the upper hover portion and of the canopy or top member of the hover.

Fig. 6 is a reduced bottom view of the central portion of the hover of Fig. 5.

In the illustrated embodiment, Fig. 1 shows an oil-heated brooder in which the oil burner 1 projects above a burner casing 2 seated on the floor, the burner being vertically adjustable in any usual manner for controlling the flame by varying the level of the oil at the burner.

The burner is hooded by a hover consisting of a substantially horizontal top plate 3 having at its periphery a downwardly flaring flange 4 to which the truncated and also downwardly flaring frusto-conical side portion 5 is secured, this securing being preferably by detachable bolts 6 so that the said side portion can be built of radial sections made of metal sufficiently thin to be shipped flat. Legs 7 support the side portion 5 with the lower edge of the latter sufficiently above the ground to permit the chicks to pass under it.

Thus arranged, the hover proper can be built in a relatively low and compact form, as its top plate 3 will serve as a deflector for distributing the heat of the burner flame radially outward, thereby making an inexpensive and highly efficient hover. However, without further provisions, such a low mounting of the hover makes it decidedly inconvenient for the user to get any idea as to the burner flame, and impossible for the user to see the condition of the wick without lifting the hover and thereby exposing

the chicks to undesired drafts. Moreover, the nearness of the hover top to the flame would cause that top to transmit a large amount of the heat to the air above it, thereby wasting fuel, while the central position of the burner would deter sufficient movements of air to keep this fresh for the chicks.

To overcome all of these objections, I provide a movable and heat-insulated hover top, together with suitably disposed ventilating aperture, here shown as follows:

In the hover top plate 3 I provide at least one and desirably a plurality of apertures 8, preferably near the center of this plate so as to be approximately over the burner, thereby permitting the user to look down into the burner for a convenient observation of the flame and the wick. These apertures 8 are normally closed by a detachable hover canopy or top member which has its main portion covering the entire top plate 3 of the hover, and this main portion preferably is of an effective heat-insulating nature. With the latter feature in mind, this canopy top desirably includes a top plate 9, a bottom plate 10 and an interposed filling 11 of mineral wood or other heat-insulating material, these plates being connected by suitable means (such as rivets 12) which clamp the heat-insulating filling between them.

Extending downward from the edge of the top plate 9 is an annular wall 9^A which peripherally houses the heat-insulating material, and this wall has as its continuation a downwardly flaring flange 9^B seated on the flange 4 of the hover top, whereby the parts 9, 9^A and 9^B together constitute a member shaped like an inverted dinner plate. The two flanges 9^B and 4 are provided with perforations 14 and 15 adapted to align with each other to afford ventilating openings, and if the side portion 5 of the hover proper extends as high as these openings, it also has perforations 16 aligning with the perforations 15 in the flange 4 of the hover top, as shown in Fig. 2. By rotating the canopy top on the hover proper, the perforations 14 can be disposed out of alignment with those in the hover proper, or in partially overlapping relation (as shown in Fig. 4), thereby permitting the user to regulate the extent of the ventilation. To facilitate this rotation, I desirably provide interengaging pivot means on the top of the hover proper and on the said canopy. For this purpose, Fig. 2 shows screw-eye 17 secured centrally to the canopy and having its stem 17^A extending through a central perforation 18 in the top plate 3 of the hover proper.

Thus arranged, the entire canopy top (or top member) can readily be lifted off the hover proper—desirably by sliding a rod through the screw-eye and using this rod as a handle, as the eye itself may be hot—so as to permit the user to look down into the

burner. The screw-eye also facilitates the rotating of the canopy on the hover proper for controlling the ventilation through the apertures 14 to 16, as a slight raising of the canopy by means of the screw-eye lifts the flange 9^B off the hover proper, so that the canopy (or top member) is then freely rotatable about the journaling connection of the shank 17^A of the screw-eye to the top of the hover proper. When these apertures are even partially aligned, the hot air within the hover will cause an upward draft through them, so that I can readily secure ventilation to any desired extent.

By constructing the hover side portion 5 of sections which can be packed flat and by using a relatively shallow top member (9, 9^A, 9^B), I permit the entire hover to be packed in a quite small crate. With the flange 9^B of the canopy top resting on the flange 4 of the hover top, the annular part 9^A of the canopy top may be sufficiently tall to provide an air space between the plates 3 and 10 to serve as an additional heat insulation for reducing the loss of heat through the top of the brooder, as shown in Fig. 2. However, I do not wish to be limited to this or other details of the construction and arrangement above described, as many changes could obviously be made without departing either from the spirit of my invention or from the appended claims. Thus, it will be evident that the side portion 5, the top 3 and the connecting flange 4 of the hover form a rigid structure, so that it is immaterial of how many parts the resulting hover is constructed.

Illustrative of modifications, Fig. 5 shows upper portions of a brooder hood in which the flaring side portion 5 terminates below the ventilating perforation 16, and in which the seating flange 19 is integral with the bottom plate 20 of a canopy or top member, which member includes a solid disk 21 of heat-insulating material secured to the said plate 20 by rivets 22. The flange 19 has an upturned outer edge 23 whereby it may be lifted or rotated, and the canopy has aligned perforations 24 and 25 in the disk 21 and the plate 20. These perforations 24 and 25 are rotationally displaced from the perforations 8 and 16 in the hover, as indicated in Fig. 6, so that they will only align with a perforation 8 in the hover proper when the radially outward ventilating perforations 14 and 16 do not align. With this arrangement, the canopy or top member need not be detached for looking into the burner, but is merely partially rotated for that purpose.

I claim as my invention:

1. A hover for use over a brooder heater, comprising a downwardly flaring side portion and a top member rotatable on the side portion, the side portion and the top member having perforations adapted to be

brought into and out of alinement by rotation of the top member with respect to the side portion.

2. The combination with a hover having a perforation in its upper portion, of a top member rotatable on the hover and having a perforation adapted to be brought into alinement with the perforation in the hover by rotational movement of the top member, and a lifting member secured to the top member and journaled in the hover.

3. The combination with a hover having a perforation in its upper portion, of a top member rotatable on the hover and having a perforation adapted to be brought into alinement with the perforation in the hover by rotational movement of the top member, and a screw eye extending downwardly through the center of the top member and secured to the latter and journaled in the center of the top of the hover.

4. The combination with a hover having a perforation near the center of its top and having another perforation in an upper portion distant from its center, of a top member detachable from the hover and rotatable with respect to the hover, the top member having an imperforate portion normally closing the first named perforation and having an aperture adapted to be disposed in or out of alinement with the second named perforation according to the rotational position of the top member with respect to the hover.

5. In combination, a hover having a substantially horizontal disk-like top and having a ventilating opening in an upper portion of the hover radially outward of the said top, and a top member movable upon the hover, the top member including a heat-insulating portion substantially covering the said disk-like top and another portion arranged for controlling the ventilating opening by movements of the top member with respect to the hover.

6. In combination, a hover having a substantially horizontal disk-like top and hav-

ing a ventilating opening in an upper portion of the hover radially outward of the said top, and a top member movable upon the hover, the top member including a heat-insulating portion substantially covering the said disk-like top and another portion arranged for controlling the ventilating opening by movements of the top member with respect to the hover, the disk-like top having a perforation normally closed by the heat-insulating portion of the top member but adapted to be opened when the top member is suitably moved.

7. In combination, a hover having a substantially horizontal disk-like top and having a ventilating opening in an upper portion of the hover radially outward of the said top, and a top member movable upon the hover, the top member including an inverted plate-shaped member having a flange seated on the hover radially outward of the top of the hover and a heat-insulating medium housed by the said plate-shaped member, the hover and the said flange having perforations adapted to be brought into or out of alinement by rotation of the top member on the hover.

8. In combination, a hover having a substantially horizontal disk-like top and having a ventilating opening in an upper portion of the hover radially outward of the said top, and a top member movable upon the hover; the top member including a heat-insulating member overhanging substantially all of the said disk-like top and a metal member secured to the heat-insulating member, the said metal member having a peripheral portion seated on the hover, the said peripheral portion and the part of the hover on which the flange seats having perforations adapted to be brought into or out of alinement by rotation of the top member on the hover.

Signed at Macomb, Illinois, July 21st, 1927.

JACOB T. LANDGRAF.