

Jan. 1, 1935.

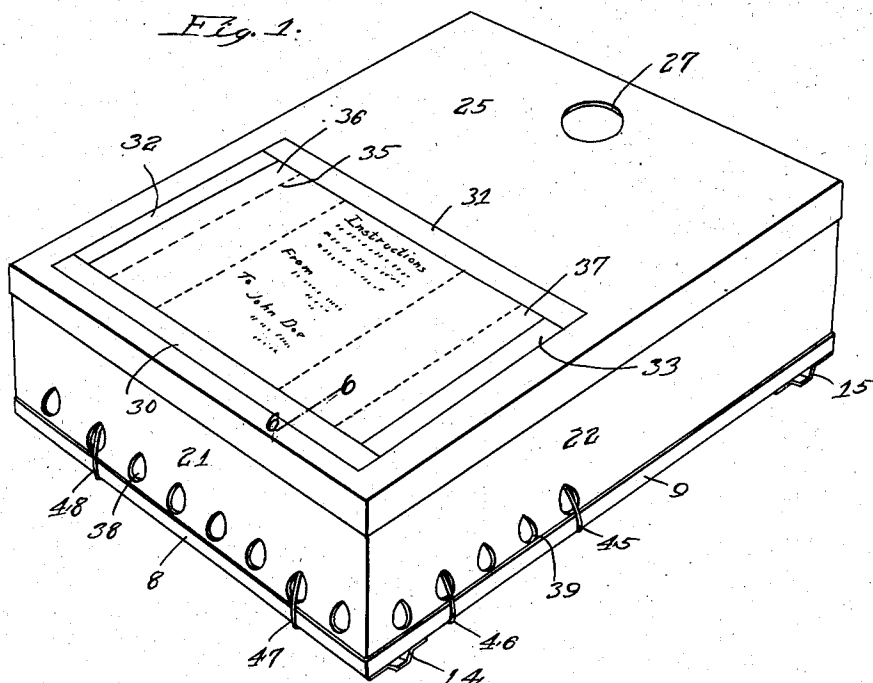
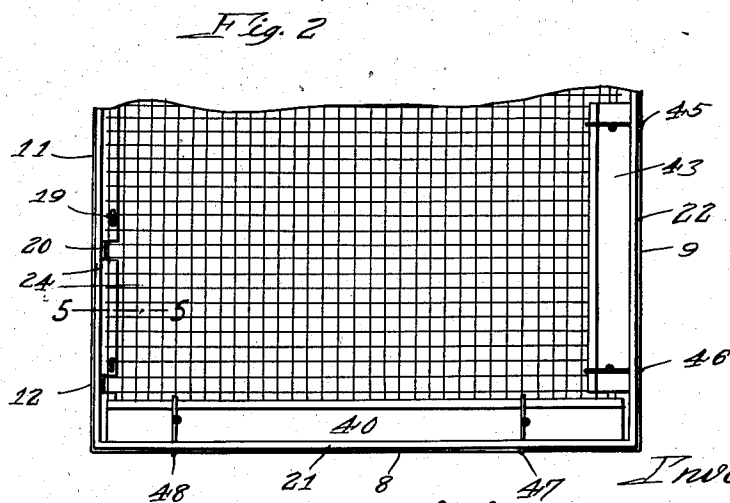
J. H. CONWAY ET AL

1,986,501

BROODER

Filed Aug. 23, 1930

2 Sheets-Sheet 1



Inventors:
 John H. Conway
 By Frederick J. Hamlin
 Wilson, Dowell, McCanna & Rehm
 Attys.

UNITED STATES PATENT OFFICE

1,986,501

BROODER

John H. Conway and Frederick J. Hamlin, Rockford, Ill., assignors to Rockford Fibre Container Co., Rockford, Ill., a corporation of Illinois

Application August 23, 1930, Serial No. 477,198

9 Claims. (Cl. 119—33)

Our invention relates to combined shipping containers and brooders adapted to be employed for shipping chicks from the hatchery to the purchaser and so arranged that the purchaser
5 may readily make slight alterations therein and continue the use thereof as a brooder.

Devices of this general character, formed largely of corrugated paper or the like, have been known in the past, but these have, in general, been somewhat expensive to manufacture,
10 have served only during a single brooding period, and have had certain serious disadvantages. For example, no means have been provided for properly admitting light into the container aside from the customary feeding holes. This has meant
15 that the user must either totally exclude light or must completely remove the top of the container to admit light therein, which is many times highly disadvantageous. In like manner
20 no means have been provided for catching the refuse from the container either while in transit or while being used as a brooder. Further, the construction of the device has not been such that the corrugated paper portions thereof, which
25 are relatively temporary in nature, may be replaced so that the remainder and relatively expensive parts of the device may be used successively.

We have, therefore, aimed to provide a combined shipping container and brooder wherein
30 the amount of light admitted into the container may be varied depending upon the age of the chicks contained therein.

Another object of the invention is the provision of a structure of this character wherein the sides and top are cheaply replaceable whereby it may
35 be used for successive broodings.

A further object of the invention is the provision of a combined shipping container and brooder having a tray arranged to be fixed to
40 the bottom of the container during shipment to catch the refuse and prevent drafts on the chicks and to be movable by the user to a lower position from which position it may be removed at
45 intervals for cleaning.

Another object of the invention is the provision of a device of this character having a curtain arranged to divide the container into two or more
50 compartments between which the chicks may pass.

A still further object of the invention is the provision of a device of this character having an ultra-violet ray transmitting window and means
55 covering said window arranged to admit varying

amounts of light depending upon the age of the chicks.

Another object of the invention is the provision of improved means for securing the feeding
5 troughs to the outside and the inside of the container.

A further object of the invention is the provision of feeding holes of improved shape characteristics arranged to accommodate chicks of
10 varying ages.

Other objects and attendant advantages will become apparent to those skilled in the art from the following description and the accompanying
15 drawings, in which—

Figure 1 is a perspective view of the device
15 showing its appearance when employed as a shipping container;

Fig. 2 is a fragmentary top view of the device with the cover removed, showing the troughs secured within the container for shipment;
20

Fig. 3 is a vertical section through the container taken on the line 3—3 of Fig. 4;

Fig. 4 is a vertical section through the container at right angles to Fig. 3 taken on the line
25 4—4 of Fig. 3;

Fig. 5 is a detail view taken on the line 5—5 of Fig. 2; and

Fig. 6 is a detail view taken on the line 6—6 of Fig. 1.

The device consists in a general way of a frame
30 having a screen stretched thereon to form the base of the container. Upright side walls are removably positioned upon the frame, and a top rests over the side walls. Legs on the frame serve to support the container in spaced relation with
35 the floor or other supporting body and to hold a refuse pan. A sheet of transparent material capable of passing ultra-violet rays such as "Cell-o-Glass" for example is positioned in the walls or top of the container to admit light
40 therein and a series of holes are positioned in one or more sides of the container through which the chicks may pass their heads in feeding from a trough positioned on the outside of the container and supported between the side walls
45 and the frame. An electric lamp or other suitable heating device is secured within the container to suitably heat the air therein.

Referring now to the drawings, and more particularly to Figs. 1, 3 and 4, a frame is formed
50 of corner portions 8, 9, 10 and 11 of suitable sheet metal, connected together at their ends to form a rectangular frame. Each of the corner portions is provided with an upstanding portion 12 and a horizontal portion 13, as shown in Fig. 5.
55

It will be seen that these corner portions may be formed from a single piece of metal, if desired, welded or otherwise connected at but a single point, or they may be formed in any suitable or desired manner. Two pairs of legs, designated by the numerals 14 and 15 and 16 and 17 may be secured to the frame on opposite sides to space the latter from its supporting body. Each of these legs may advantageously be formed from a strip of sheet metal bent to form a V, the free ends of the metal being spot welded or otherwise connected to the corner portions.

A wire screen 18 is positioned upon the frame and is secured to the upper side of the horizontal portions 13 by means of tongues 19 which may be struck from the horizontal portion 13 and bent upward over a strand of the screen, as shown in Fig. 5. In this way the screen 18 may be secured to the upper side of the frame with a minimum amount of expense and effort. Tongues 20 are struck from the horizontal portions 13 at intervals and are bent upward substantially parallel with the vertical portions 12 and spaced therefrom, as shown in Fig. 5, for the purpose of supporting the side walls presently to be described. A downwardly and inwardly extending projection 20a may be formed on each of the tongues 20 adapted, through frictional contact with the side walls, to pierce the fiber if the walls move upward to prevent them from slipping out.

Side walls 21, 22, 23 and 24 are formed preferably of corrugated box board. Artificial lumber, such as pressed board of vegetable fibers of the nature of "Insulite", "Maizewood" and the like may be employed, the desired characteristics being lightness and cheapness. The box board, a term which we shall employ to mean any material of this nature, may advantageously be further improved by treating it with a suitable waterproofing agent such as paraffine or other agent to increase the life thereof in service. The side walls are of sufficient length to be received in the corner portions 8, 9, 10 and 11, as shown in Figs. 3, 4 and 5, to closely fit against the inner side of the vertical portions 12 thereof and may be of any suitable or desired height. The side walls may be formed by suitably cutting and bending a sheet of box board and connecting the free ends together or they may be formed from separate sheets and be connected in any well known manner. It is desirable, however, that they be connected to form a unitary structure. The lower edges of the side walls are secured within the frame through the tongues 20, the space between the tongues and the vertical portions 12 being of such width as to receive the side wall therebetween. The tongue 20 may be inclined slightly toward the vertical portion 12 near its upper end so as to exert a clamping force upon the side wall.

The side walls 21 and 22 are provided with holes 38 and 39 near the lower edges thereof, the openings being of such size as to permit the chicks to pass their heads therethrough to obtain food and water. We have found it to be advantageous to make these holes oblong in shape of such width that the chicks cannot pass through but of such length as to permit their use by chicks of different heights and to permit vertical movement of the chicks' heads while eating. We have found one suitable size to be $\frac{3}{4}$ " wide and $1\frac{1}{2}$ " long.

A top designated generally by the numeral 25 is of conventional design. It is formed of box board and has the edges 26 thereof turned downward to slip over the outer side of the side walls

21, 22, 23 and 24. An opening 27 is provided in the top 25 adjacent to the side wall 23 to receive the socket of a heating lamp presently to be described. An opening 28 is provided in the top 25 adjacent to the side wall 21 and of sufficient size to permit the interior of the container to be satisfactorily lighted. A sheet of transparent material 29 is positioned over the opening 28 by means of strips of adhesive tape 30, 31, 32 and 33, which pass along the junction between the transparent material and the top 25. While any transparent material may be employed for this purpose we have found it to be highly advantageous to employ a material capable of transmitting ultra-violet light and one having a certain amount of elasticity. Such a material is found on the market under the trade name "Cell-O-Glass". It will be seen that under certain circumstances it may be desirable to provide the window formed by the opening 28 and the transparent material 29 in one of the side walls 21, 22, 23 or 24. Such a structure will enable a number of containers to be placed one upon the other without excluding the sunlight from the interior of the container.

Chicks are placed in shipping containers of this character when very young, and under these circumstances in the presence of light tend to become cannibalistic and peck each other. This tendency gradually decreases as the age of the chicks increases. It is, therefore, desirable to permit progressively increasing quantities of light to enter the container, the amount depending upon the age of the chicks. In order to acquaint the user with the proper amount of light to be admitted at various periods we have provided a blind 34 arranged to completely cover the transparent material 29, thereby completely preventing the passage of light therethrough. This blind may advantageously be formed of paper which may be readily perforated or marked. The blind is provided with perforations or marks designating certain areas thereon which should be torn off by the user at certain periods. Directing attention to Fig. 1, the user will first be directed to tear off, for example, the portion designated by the numeral 36, thus admitting a certain amount of light through the window. He will further be directed to remove, for example, the area 37 after the lapse of a certain further period of time. The instructions thus direct the user to remove successive areas of paper, the amount of which is predetermined and indicated by the lines or perforations 35, after the lapse of succeeding periods of time until all of the blind has been removed. In this manner the user is prevented from ignorantly or accidentally admitting more than the desired amount of light to the chicks in the container.

The strips of tape 30, 31, 32 and 33 may be employed for securing the blind to the transparent material 29 as well as for securing the transparent material to the cover 25. Thus if the blind 34 is made of slightly smaller dimensions than the transparent material 29 the tape will secure the edges of each of these units to the top 25, as shown in Fig. 6.

A trough, designated generally by the numeral 40, which may advantageously be rectangular in shape to provide an inner wall 41, is positioned adjacent to the side wall 21 by means of a lip 42 connected to the top of the trough and projecting downward therefrom parallel with the inner wall 41 thereof, the lip 42 being arranged to be inserted between the vertical portion 12 of

the corner portion 8 and the lower edge of the side wall 21, as shown in Fig. 3. This trough may be formed in any well known or desired manner to contain a quantity of food or water which the chicks may eat or drink by passing their heads through the opening 38 in the side wall 21. A second trough 43 is positioned along the side wall 22 beneath the holes 39 in like manner, the trough having a lip 44 insertable between the vertical portion 12 of the corner portion 9 and the side wall 22, as shown in Fig. 4. When the device is used as a shipping container the troughs 40 and 43 are positioned against the inner side of the side walls 21 and 22 covering the openings 38 and 39, as shown in Fig. 2. The trough 43 is secured in this position by means of wires 45 and 46 which pass through two of the openings 39 and around the corner portion 9 and the trough 43. In like manner the trough 40 is secured over the openings 38 by means of wires 47 and 48 passing through two of the openings 38 and around the corner portion 8. Thus when the user receives the container holding the chicks he removes the cover from the container, cuts the wires 45, 46, 47 and 48 and places the troughs 40 and 43 in position on the outside of the container, as shown in Figs. 3 and 4.

In order to protect the chicks from contact with the heating lamp and to heat the container by circulation a metal tube 49 is positioned upon the screen 18 near the side wall 23 and beneath the opening 27 in the top. The tube may be attached to the screen 18 by means of fingers 50 clamping one or more strands of the screen. An electric socket 51, having conventional wires 52, is secured in a plate 53 of a size larger than the opening 27 so that when the socket 51 is positioned in the opening 27 the plate 53 will close the opening. An electric bulb 54 is secured to the socket 51 and positioned in the tube 49. The lighting of the bulb 54 provides sufficient heat to warm the container, the warm air rising in the tube 49 causing a circulation in the container. A curtain 55 is secured to the top 25 and extends transversely across the interior of the container, dividing the same into two compartments, one containing the tube 49 and one having the window. The curtain 55 is of such a nature as to permit the chicks to displace it and pass from one chamber to the other. A pan, designated generally by the numeral 56, is positioned beneath the screen 18 for the purpose of catching refuse passing therethrough. This pan is of sufficient size to extend beyond the exposed portions of the screen 18. When the device is used as a shipping container the pan 56 is wired firmly against the frame by means of wires, not shown, passing through openings 57 and 58 at each corner of the pan and around one or more strands of the screen 18. However, when the container reaches the user, who is to employ it as a brooder, the wires are removed and the pan allowed to occupy a position spaced from the screen 18 whereby it may be removed for cleaning. In order to support the pan 56 in spaced relation with the screen 18, V-shaped supporting blocks 59 are provided and secured to each of the legs 14, 15, 16 and 17, as shown in Figs. 3 and 4. The pan rests upon the apexes of the V-shaped supporting blocks 59 and may slide freely thereupon.

When the container has been used for a season, or a brooding period, and the side walls and top have become damaged, the user may purchase a replacement including a top, side walls, blind, and tape for attaching the window and

blind. The sheet of "Cell-O-Glass" may then be removed from the old top and secured to the new one, together with the new blind, by means of the tape. The old top and side walls are discarded and the new top and side walls assembled on the frame. Thus at a few cents cost a substantially new brooder is obtained.

The advantages of our improved construction will have become apparent to those skilled in the art. We have provided a permanent frame wherein the side walls may be readily interchanged when they become saturated with moisture or become dirty, the expense of such a change being relatively small. We have so arranged the "Cell-O-Glass" window and the blind thereof that it may readily be removed from the top and be replaced together with a new blind upon a new top. In this manner the only portions of the brooder requiring change are the side walls and the top which are formed entirely of box board and may be provided at the expense of but a few cents.

We have provided a combined shipping container and brooder having means for catching the refuse during shipment and means for periodically removing the refuse during the period in which the device is used as a brooder. The refuse may be removed without lifting the cover from the brooder and exposing the chicks to the cold air.

We have provided a heater which brings about a circulation of air through the heated compartment thereof.

The device is such that substantially true sunlight is admitted into the container and the user is informed of the proper amount of light to be admitted. Means are thus provided for measuring the amount of this permissible light.

We have provided improved means for connecting the food and water trays to the container whereby they are easily removable for cleaning and wherein the paper of the side walls need not be weakened by forming a cut therein to support the troughs. The design of the device is such that the feeding holes in the side walls are covered by the troughs when the device is used as a shipping container thereby preventing the chicks from being injured by any part of their bodies projecting through the openings during shipment.

Combined means are provided for preventing draft through the container while it is being used as a shipping container and for catching refuse, at this time, and when the device is used as a brooder.

The device is such that but a very small amount of the space of the container is taken up by the troughs and heater while the same is being used as a shipping container.

The device is such that it may be manufactured at a substantially smaller cost than other devices of like character and may be continued in use during a long period of time by periodical replacement of the side walls and trough at very small cost.

While we have thus described and illustrated a specific embodiment of our invention we are aware that numerous alterations and changes may be made therein without materially departing from the spirit of the invention or the scope of the appended claims, in which—

We claim:

1. The combination in a shipping container and brooder of a sheet metal frame having integral horizontal and vertical portions, a wire

screen, tongues on said horizontal portions for securing said screen across said frame, said frame and said screen forming a unitary base, tongues on said horizontal portions substantially parallel to said vertical portions, and side walls positioned on said frame between said vertical portions and said tongues adapted to be removably held through frictional contact therewith.

2. The combination in a shipping container and brooder of a frame, a screen forming a bottom for said frame, side walls of fibrous material, means on said frame for releasably holding said side walls to permit the latter to be readily replaced when damaged, a tray beneath said screen movable between an upper position for shipment to provide a solid bottom for said container and to exclude drafts, and a lower removable position spaced from said screen to catch the refuse falling through said screen, and means for supporting said tray in each of said positions.

3. The combination in a shipping container and brooder of a frame, a screen forming a bottom for said frame, side walls of fibrous material, means on said frame for releasably holding said side walls to permit the latter to be readily replaced when damaged, a tray beneath said screen movable between an upper position for shipment to provide a solid bottom for said container and exclude drafts, and a lower removable position spaced from said screen to catch the refuse falling through said screen, means for fixedly supporting said tray in said upper position, and means for slidably supporting said tray in said lower position.

4. The combination in a shipping container and brooder of a base, side walls of box board secured to said base, a top over said side walls having an opening therethrough to the interior of the container, said top including transparent material secured over said opening to admit light therein, and a blind over said transparent material adapted to prevent the passage of light through said material, said blind having divisions thereon to indicate portions thereof to be removed at intervals during the brooding operations, to admit increasing quantities of light to chicks in said container as the age of the chicks increases.

5. The combination in a shipping container and brooder of a base, side walls of box board secured to said base, a top over said side walls having an opening therein, said top including transparent material positioned over said opening to admit light into said container, a paper blind positioned over said transparent material to prevent the passage of light therethrough, and perforations in said paper to permit the same to be torn to remove predetermined areas of said blind from said transparent material at predetermined times, whereby the amount of light entering said container may be periodically increased with the age of said chicks in said container.

6. The combination in a shipping container and brooder of a base, side walls of box board

secured to said base, a top over said side walls having an opening therein, said top including a sheet of transparent material of greater size than said opening positioned thereover to admit light into said container, a blind of lesser size than said transparent material positioned thereon, and adhesive tape positioned to secure the edges of said blind and said transparent material to said top, whereby said transparent material may be removed from one top and placed on a second top, replacing the first.

7. The combination in a shipping container and brooder of a sheet metal frame having integral horizontal and vertical portions, a wire screen on said frame arranged to provide a bottom therefor, side walls of box board secured to said frame, at least one of said walls having a plurality of holes through which chicks in said container may pass their heads, a trough arranged to occupy an operative position secured to said frame outside said container to hold a quantity of food, shaped to be positioned in an inoperative position within said container across the holes in said side wall, to prevent the access of chicks thereto during shipment, and means for securing said trough in said last mentioned position.

8. The combination in a shipping container and brooder of a sheet metal frame having integral horizontal and vertical portions, a wire screen on said horizontal portions supported across said frame, tongues on said horizontal portions substantially parallel to said vertical portions, side walls positioned on said frame between said vertical portions and said tongues, adapted to be held through frictional contact therewith, at least one of said side walls having a plurality of holes through which the chicks in said container may pass their heads, a trough having an inner vertical wall, a lip on said trough parallel with said inner wall and spaced therefrom to receive a vertical portion of said frame whereby to hold a supply of food for said chicks, said trough being adapted to occupy an inoperative position on the inside of said container closing said holes, means for securing said trough in the last mentioned position, a tray beneath said screen, and means for securing said tray in an upper position for shipment and a lower removable position spaced from said screen to catch the refuse falling there-through.

9. The combination in a combined shipping container and brooder, of a container having a bottom, side walls and top, one of said side walls having a plurality of feeding holes positioned and shaped for the reception of the head of a chick, means for securing a feeding trough at the outside of said container in position to be reached by the chicks through said holes, and means including a feeding trough secured across said holes for closing said holes during shipment of chicks in the container to prevent the chicks from extending their heads therethrough.

JOHN H. CONWAY.

FREDERICK J. HAMLIN.