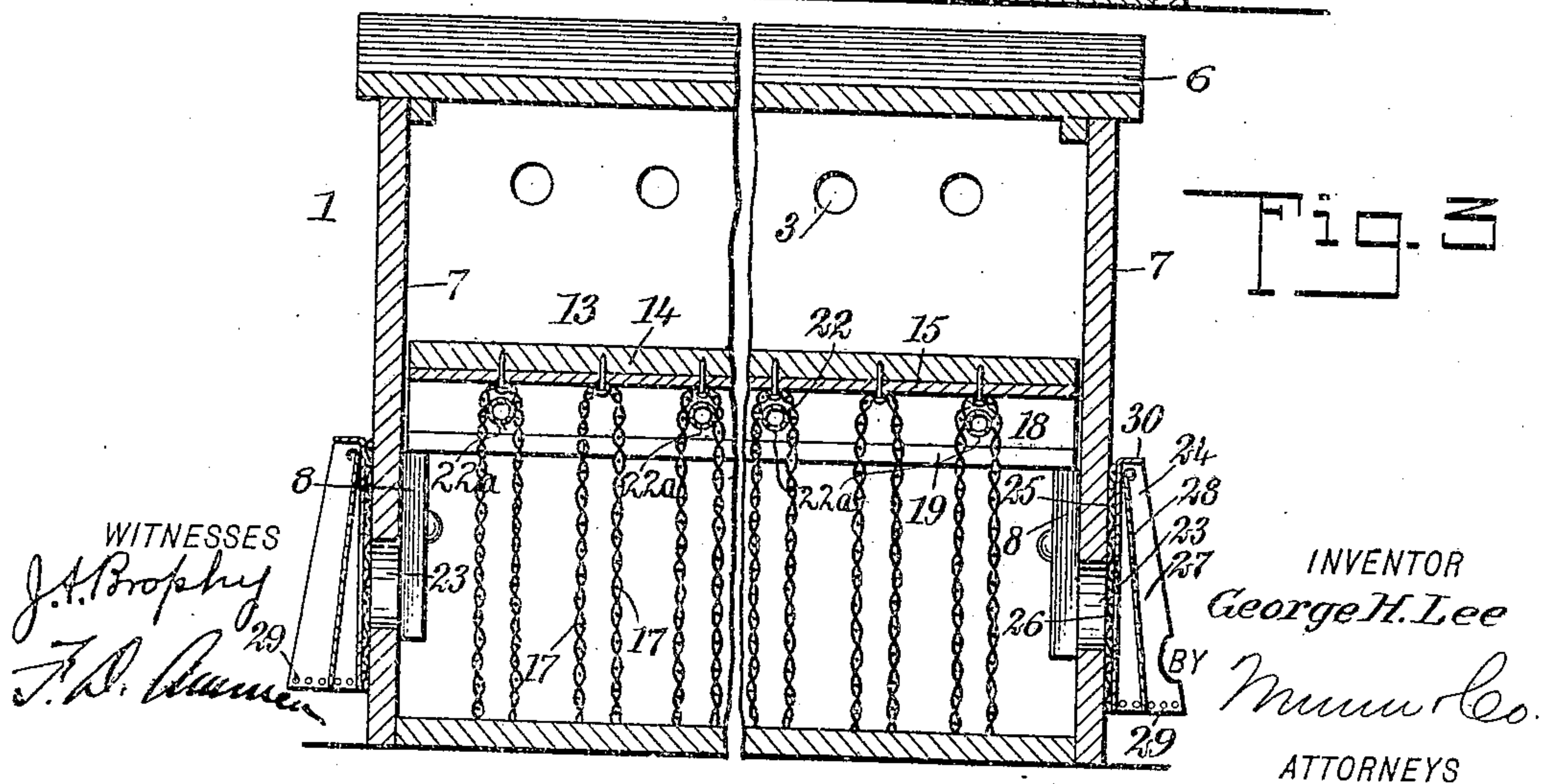
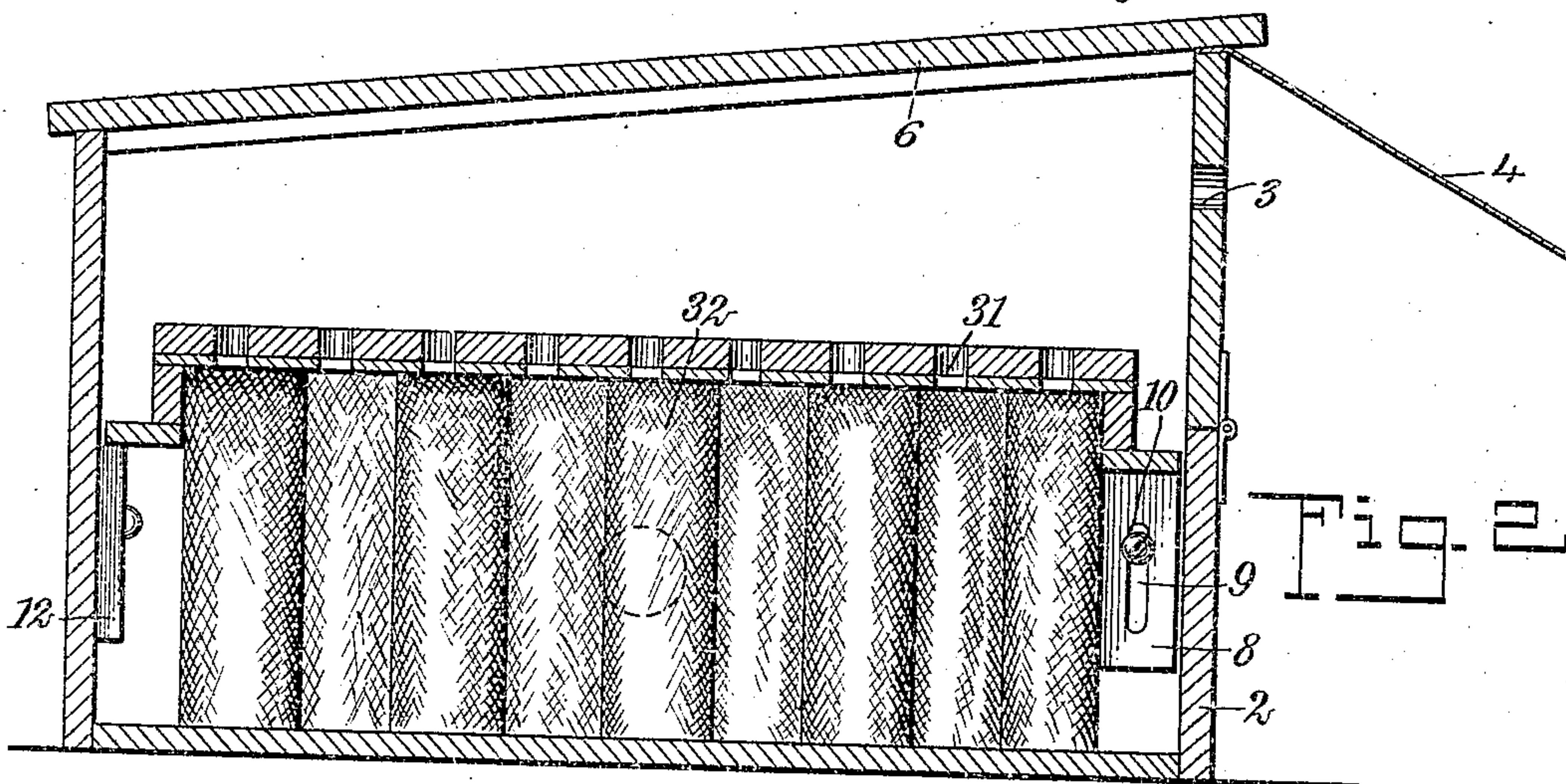
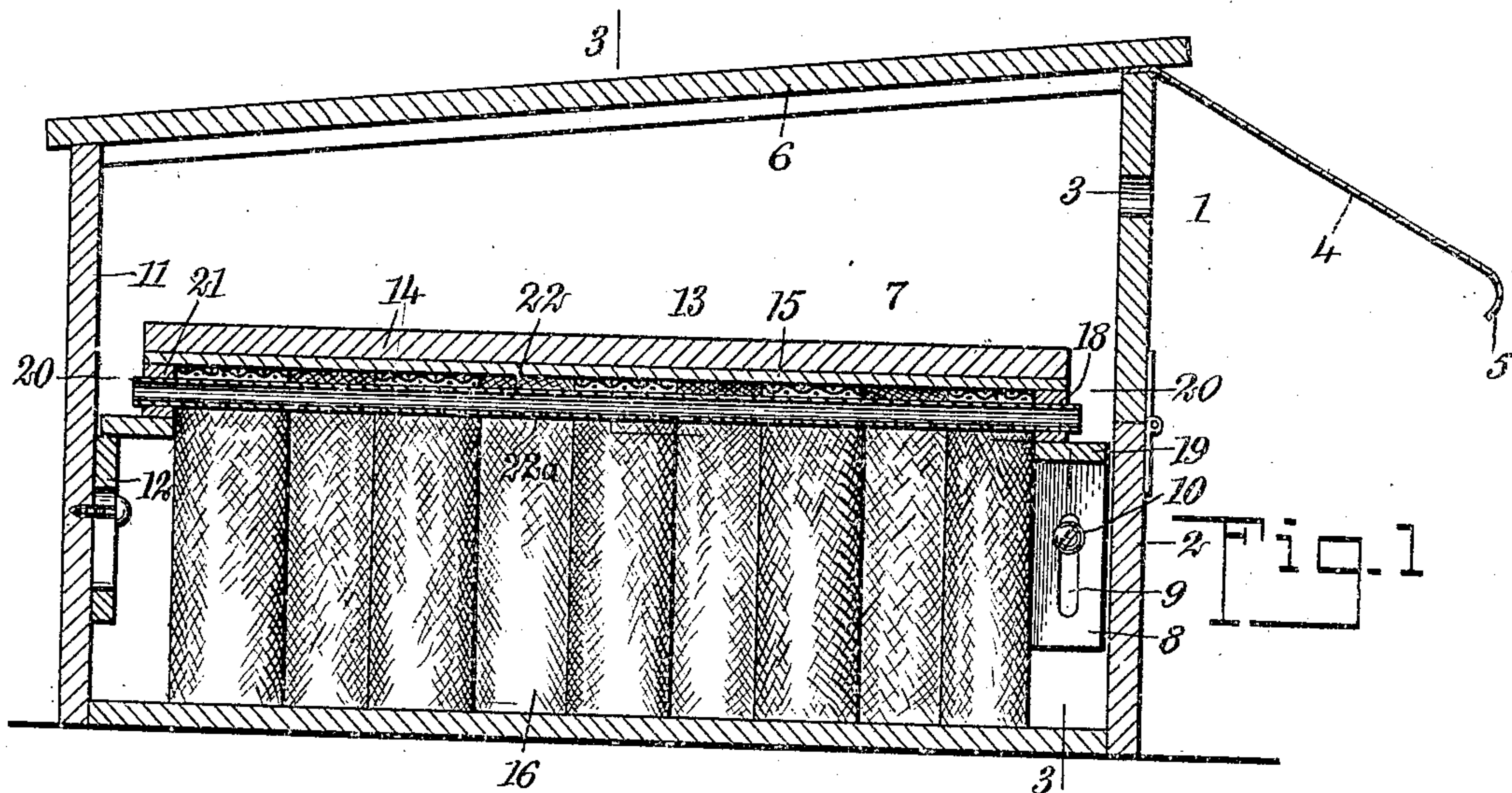


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FIRELESS BROODER.  
APPLICATION FILED MAY 19, 1908.

960,099.

Patented May 31, 1910.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

GEORGE HOWARD LEE, OF OMAHA, NEBRASKA.

FIRELESS BROODER.

960,099.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed May 19, 1908. Serial No. 433,680.

*To all whom it may concern:*

Be it known that I, GEORGE H. LEE, a citizen of the United States, and a resident of Omaha, in the county of Douglas and State of Nebraska, have invented a new and Improved Fireless Brooder, of which the following is a full, clear, and exact description.

This invention relates to fireless brooders such as are used by poultry breeders in raising chicks. The brooder is intended especially to be used without being heated by artificial means and the construction of the brooder is such as to retain the bodily heat which passes from the chicks. The arrangement is such that an air chamber is provided over the chick compartment in which the heated air accumulates, and the parts are constructed in such a way that as the height of the ceiling or cover of the chick compartment is increased to compensate for the growth of the chicks, the air chamber above the chick compartment decreases in volume. From this arrangement when the chicks are very small, a greater quantity of warm air is held in the air chamber, but as the chicks increase in size and strength, the volume of this air chamber becomes reduced as the desirability of a high temperature in the brooder becomes less.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a cross section through a brooder constructed according to my invention; Fig. 2 is a similar view showing a modified form of the invention; and Fig. 3 is a longitudinal vertical section through the brooder shown in Fig. 1, and taken on the line 3—3 of Fig. 1; the middle portion of this figure is broken away.

Referring more particularly to the parts, and especially to Figs. 1 and 3, 1 represents the body of the brooder which has the form of a box, as shown, with a hinged door 2 on the forward side. The upper portion of the forward wall is provided with ventilating openings 3. The rain and weather is excluded from these ventilating openings 3 by a forwardly projecting, downwardly inclined shield 4, the lower edge of which is

bent under to form a hook 5. This hook is adapted to engage the lower edge of the hinged door 2, when thrown wide open, so as to retain the door in its open position, as will be readily understood. The box 1 is provided with an inclined roof 6 which is weather-proof and water-tight. On the end walls 7 of the brooder, vertically adjustable brackets 8 are provided. In order to enable these brackets to be adjusted as suggested, they are formed with vertical slots 9, in which fastening screws 10 are received. These brackets have simply the form of plates or short strips of wood. On the rear wall 11, similar brackets 12 are attached, which are similarly adjusted. Supported on the brackets, I provide a hover 13; this hover consists of a rectangular board or plate 14, to the under side of which a padding sheet 15 of felt or similar absorbent material, is attached. On the under side of this padding sheet 15, a plurality of blankets 16 are attached. These blankets hang in oppositely disposed folds or layers 17, and the ends of the blankets overlap each other, as illustrated in Fig. 1. In this way the chicks are enabled to pass freely in any direction in the space under and between the blankets.

At the forward and rear edges of the board 14, on the under side thereof, stringers or side rails 18 are attached, and these side rails have cleats 19 attached to their lower side edges, as shown. These cleats project outwardly from the stringers 18, and rest upon the upper ends of the brackets 8 and 12 so as to support the hover, as will be readily understood. On account of the fact that the cleats 19 project beyond the stringers 18, it will be seen that air spaces 20 are formed at the forward and rear edges of the hover. In the stringers 18, oppositely disposed openings 21 are formed, and in these openings I place ventilating tubes 22, which extend continuously through the hover, the ends of the tubes being open and communicating with the air spaces 20. These tubes are provided on their under sides with perforations or air vents 22<sup>a</sup>. These tubes are preferably in alinement with the blankets, which are arranged in rows, as indicated in Fig. 3. The arrangement is such that the folds 17 of the blankets on alternate rows, hang over the tubes, that is, one side of the fold hangs on one side of a tube, and the other fold on the opposite side.

It will be observed that the hover 13 is



disposed at substantially middle height in the brooder box so that an air space is formed in the brooder above the hover, and this air space communicates with the exterior through the ventilating openings 3. By means of the adjustable brackets 8 and 12 the height of the hover above the brooder floor may be adjusted as desired. In order to provide for regulating the temperature of the lower compartment of the brooder below the hover, I provide the end walls thereof with openings 23. At these openings I provide ventilating devices 24 of special construction. These ventilators 24 are fully described in my co-pending application Serial No. 429,884, filed April 29, 1908. Each of these ventilators is formed with a base plate 25 which is attached over the openings 23, a gauze screen 26 being placed between the base plate and the openings, as illustrated. The side edges of this base plate are bent outwardly so as to form guide flanges or wings 27, and between the wings in the upper part of the ventilator, a shutter 28 is hinged or pivoted. This shutter may be closed tightly against the base plate, or it may be disposed in a more or less open position, as indicated in Fig. 3. It is held in any adjusted position by means of small brackets or buttons 29 which are formed in the end faces of the guide wings 27. The upper edge of the base plate 25 is bent outwardly to form a flange or cover 30, which excludes the rain from the ventilator. In cold weather these ventilators will be left closed, but in warm weather they may be open more or less to regulate the temperature of the brooder as suggested.

Instead of employing the ventilating tubes 22, I may do away with them altogether, and also with the openings 21, and provide the ventilation for the chick compartment by means of perforations or ventilation openings 31, formed through the hover plate 13 and the lining sheet 15, as indicated most clearly in Fig. 2. In this case the blankets 32 are hung in folds in a similar manner, as indicated in Fig. 3. In other respects the construction of the brooder is identical with that disclosed in Figs. 1 and 3.

Attention is called to the fact that the ventilating openings which conduct the air under the blankets, do not communicate directly with the exterior of the brooder, but with the air space above the hover. In this way drafts are prevented, although a sufficient supply of air is insured. The blankets below the hover guide the excessively heated air up through the openings into the upper air compartment and tend to retain the heat developed by the bodies of the chicks for the reason that this heat cannot escape directly to the atmosphere. This is one of the advantages of the air space formed over the hover. Attention is also called to the fact

that at the sides of the brooder, that is, at the end walls, the hover plate extends out close to the walls so as to cut off the ingress of air at this point. In this way the air which is admitted to the chick compartment cannot pass in except by the ventilating means provided. This construction is fully illustrated in Fig. 3. Special attention is called also to the peculiar advantage of the adjustable hover in a fireless brooder, that is, in a brooder in which no artificial heat is employed. It should be observed that when the chicks are small, the hover is at its lowest point in the brooder so that the volume of the hot air in the air chamber is greatest. As the chicks increase in size and strength, the raising and adjusting of the hover reduces the volume of the air chamber above the hover so that the temperature in the interior of the brooder tends to fall slightly. In other words, the volume of air in the air chamber decreases automatically as the chicks increase in size and strength.

Attention is called to the position of the ventilator openings 23 where the fresh air finds its way into the chick compartment. The blankets 17 run transversely between these openings and this arrangement tends to produce a good air circulation through the interior of the brooder. If the blankets 17 were arranged longitudinally between the inlet openings 23 there would be a tendency for all the air to pass down the space between the adjacent blankets. Attention is also called to the fact that as the chicks increase in size the hover is adjusted upwardly and this raises the lower edges of the curtains or blankets 17 so that the air will pass with greater freedom along the floor of the brooder toward the interior of the chick compartment. In this way the raising of the hover produces automatically an increase in the air space.

Having thus described my invention I claim as new and desire to secure by Letters Patent,—

1. A brooder having a body, a hover plate supported at an intermediate point therein and dividing the interior of said body into an air space and a chick compartment therebelow, said hover plate having stringers attached to the under edges thereof, with openings therethrough, and tubes passing through said openings and having communication at their ends with said air space, said tubes having perforations throughout the length thereof to withdraw foul air from points throughout the interior of said chick compartment.

2. A brooder having a body, a hover plate supported at an intermediate point therein and dividing the interior of said body into an air space and a chick compartment therebelow, said hover plate having stringers fixed to the under edges thereof, with open-



ings therethrough, tubes passing through  
said openings and having communication at  
their ends with said air space, said tubes  
having perforations throughout the length  
5 thereof for withdrawing foul air from  
points throughout the interior of said chick  
compartment, and blankets attached to the  
under side of said hover plate and hanging  
in said chick compartment.

10 3. A brooder having a hover forming an  
air space in the upper portion thereof, and  
a chick compartment in the lower part there-  
of, and substantially cutting off communica-  
tion therebetween, said hover having venti-

lating openings at the side edges thereof and 15  
ventilating tubes passing through said open-  
ings, and communicating at their ends with  
said air space, said ventilating tubes having  
openings throughout the length thereof for  
withdrawing air from points in the interior 20  
of said chick compartment.

In testimony whereof I have signed my  
name to this specification in the presence of  
two subscribing witnesses.

GEORGE HOWARD LEE.

Witnesses:

R. D. JOHNSTON,  
HARRY ROWLEY.