

No. 736,423.

PATENTED AUG. 18, 1903.

I. MORROW.
BROODER.

APPLICATION FILED APR. 28, 1902.

NO MODEL

2 SHEETS—SHEET 1.

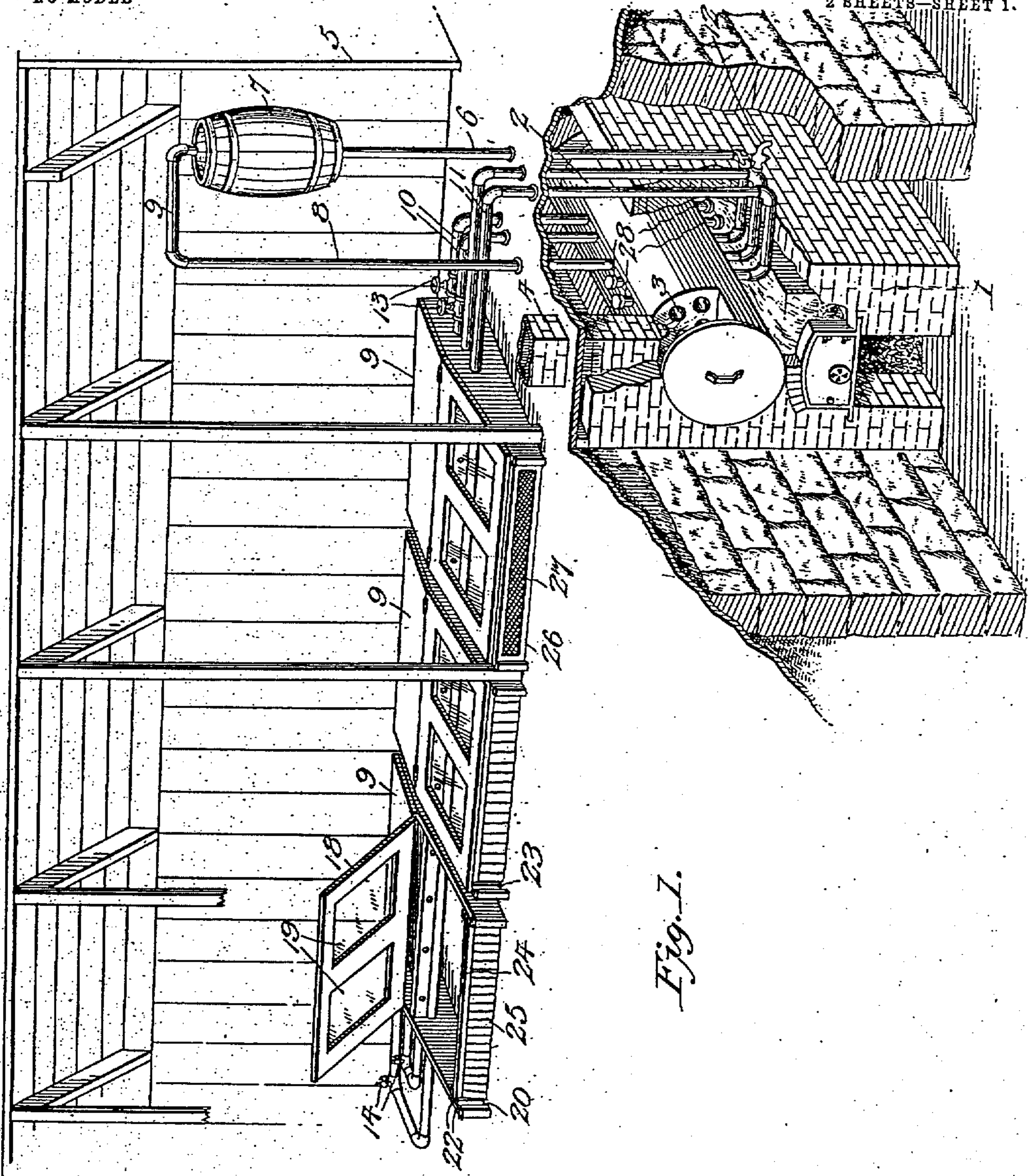


Fig. 1.

Witnesses

Edwin S. McKee

Chas. S. Hoyer.

Inventor

Isaac Morrow

By

Victor J. Evans

Attorney

I. MORROW.
BROODER.

APPLICATION FILED APR. 26, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

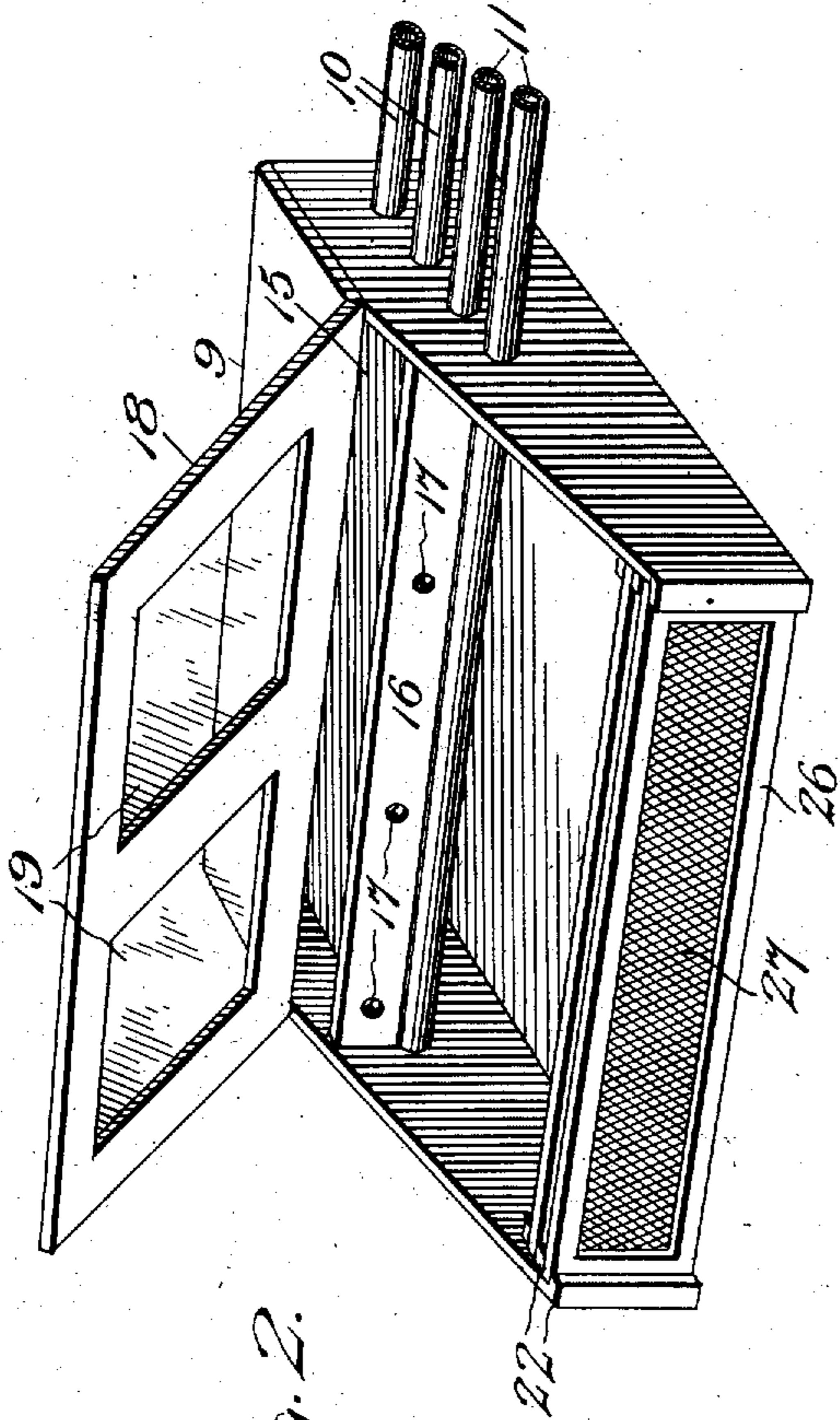


Fig. 2.

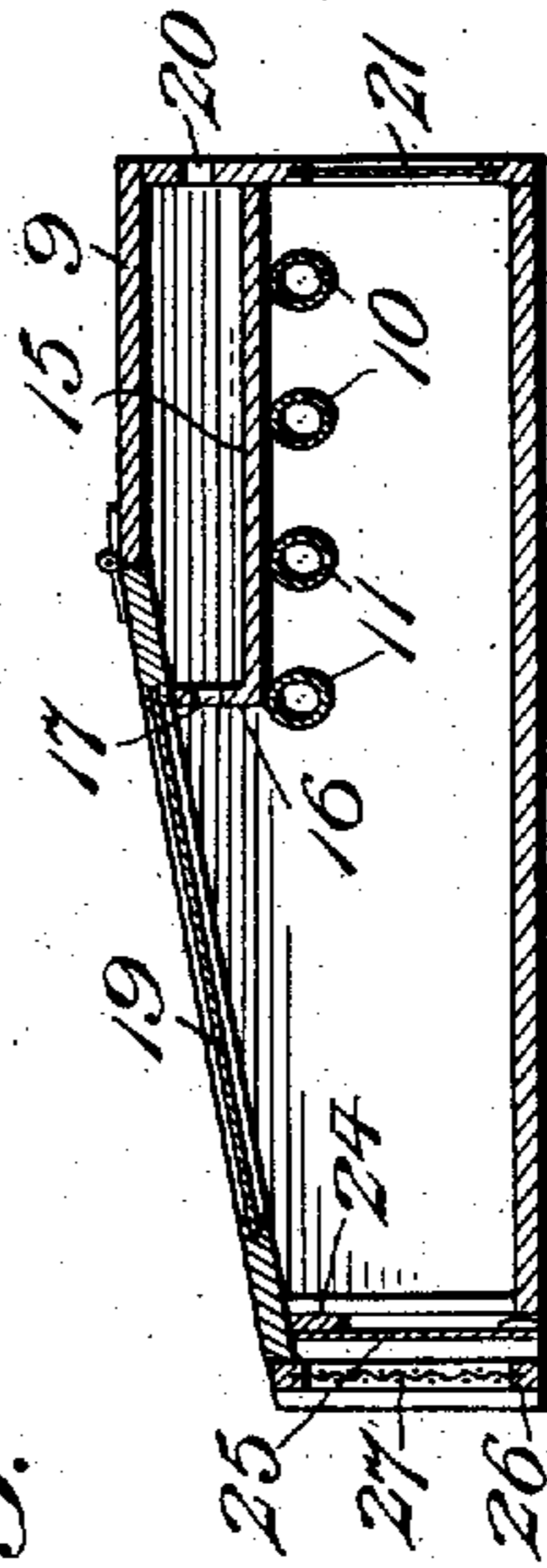


Fig. 3.

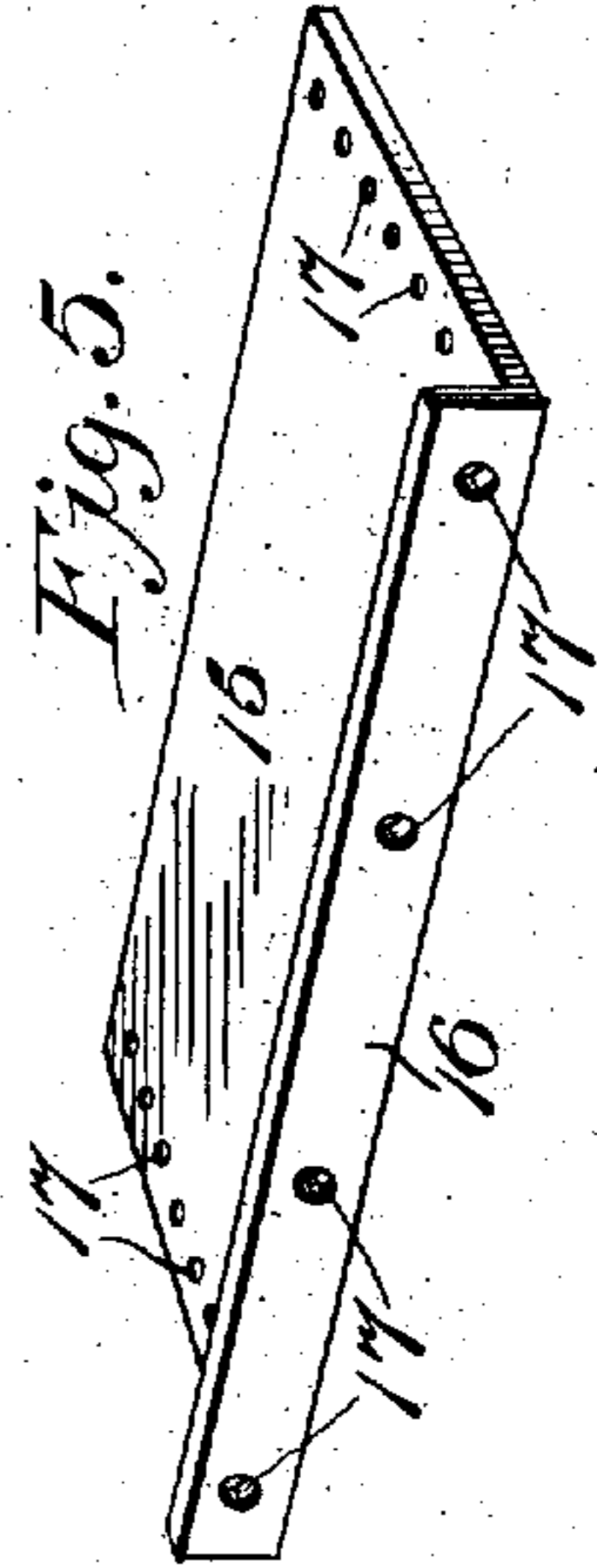


Fig. 5.

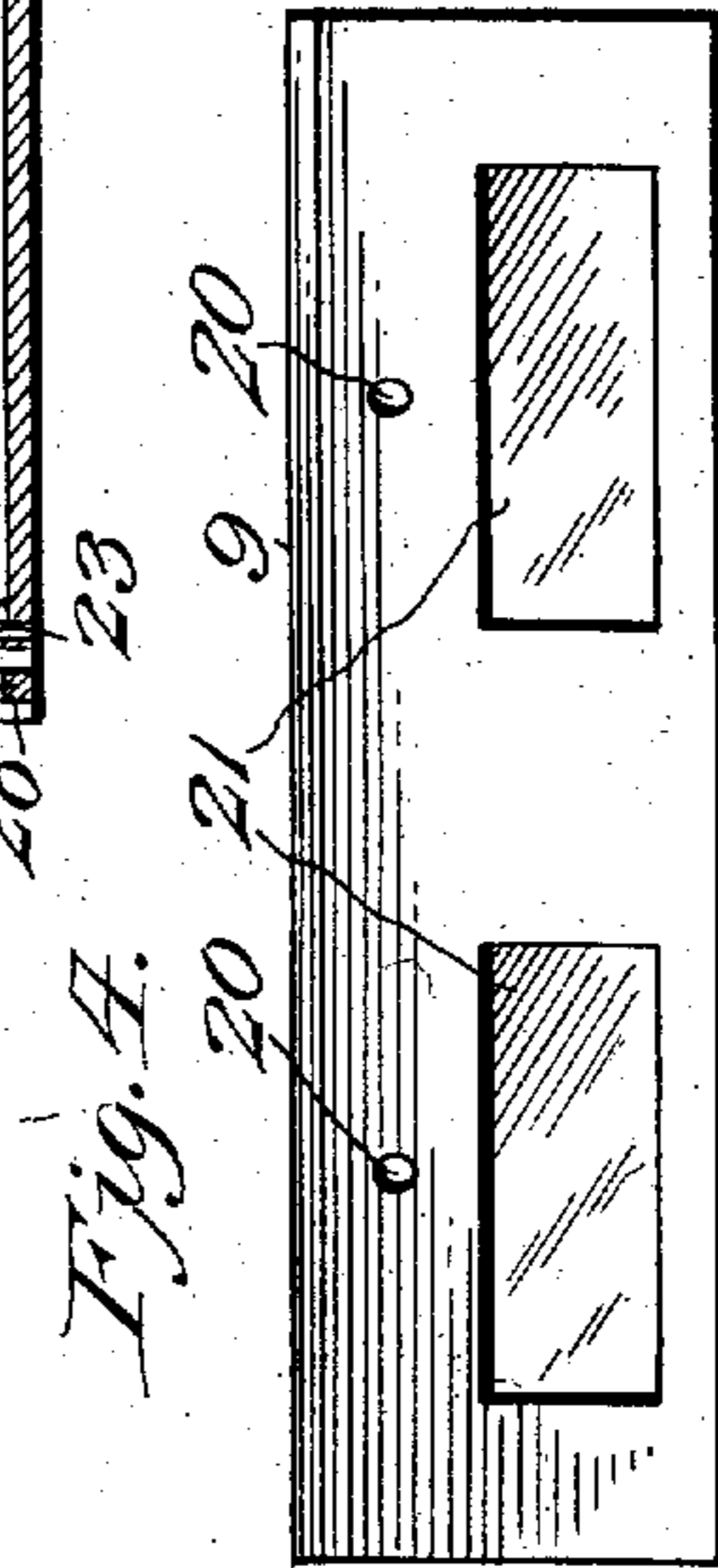


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ISAAC MORROW, OF MANHEIM, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO CLAYTON N. HOSTETTER, OF PENN TOWNSHIP, PENNSYLVANIA.

BROODER.

SPECIFICATION forming part of Letters Patent No. 736,423, dated August 18, 1903.

Application filed April 26, 1902. Serial No. 104,880. (No model.)

To all whom it may concern:

Be it known that I, ISAAC MORROW, a citizen of the United States, residing at Manheim, in the county of Lancaster and State of Pennsylvania, have invented new and useful Improvements in Brooders, of which the following is a specification.

This invention relates to incubation, and more especially to a particular arrangement or system of hot-water pipes in relation to a series of brooders of a particular form, and the primary object of the present arrangement is to obtain a more even and equable distribution and continuance of the heat within the several brooders included in the system and in the inclosure for the latter without liability of injury to the chickens during the brooding period.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a sectional perspective view showing a series of brooders and a hot-water heater, together with a system of pipes, embodying the features of the invention. Fig. 2 is a detail perspective view of one of the brooders shown open. Fig. 3 is a transverse vertical section of one of the brooders. Fig. 4 is a rear elevation of one of the brooders. Fig. 5 is a detail perspective view of a part of each brooder used in the system.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a furnace having a boiler 2 bricked or fully inclosed therein and provided with return-flues 3, whereby fuel may be economically used and the water within the boiler more rapidly heated, in view of the fact that the fire is permitted to engage the under portion of the boiler and the products of combustion return through the flues to a front stack 4. The furnace and the boiler set forth are located in a suitable underground vault or cellar below the brooders, which will be hereinafter described, and the brooders and furnace and boiler are contained within the area of a brooding house or inclosure 5 of suitable structure. It will be

understood that the boiler will be equipped with modern attachments and appurtenances, and communicating with the under portion thereof is a supply-pipe 6, which projects upwardly through the flooring of the brooder house or inclosure 5, and supported on the upper terminal thereof above the plane of said flooring is a barrel or other receptacle 7, into which water may be poured for supplying the boiler continuously with water to compensate for a reduction of water in the boiler, due to the heating thereof and formation of steam to a limited extent. Entering the top or upper portion of the boiler is a vent-pipe 8, having an upper horizontally-disposed terminal 9, with an outlet directed into the barrel or receptacle 7. As the water in the boiler becomes thoroughly heated and ebullition ensues it will rise in the pipe 8 and escape into the barrel or receptacle 7, thereby acting as a means for heating the feed-water without waste. This relief or vent means for the boiler is exceptionally important, as the steam that may be formed will be allowed to escape without the disadvantage of having it back up into the pipes employed for the circulation of hot water through the several brooders.

In the accompanying drawings, Fig. 1, a series of three brooders 9 is shown, having two supply-pipes 10 and two return-pipes 11, longitudinally extending through the rear portion thereof, the pipes 10 communicating with the top portion of the boiler 2 and the pipes 11 with the bottom of said boiler. One of the return-pipes 11 is supplied with a draw-off faucet 12 to relieve the entire system of pipes and the boiler of water when the brooders are not in use. It will be observed that the pipes 10 also have valves 13 for controlling the flow of the water therethrough, and at the return-bends of said pipes are vent-cocks 14 for relieving the pipes of air, and thereby avoid retardation of a thorough circulation of the water in heated condition through the pipes. The pipes are of materially greater diameter than those usually employed for heating brooders, so as to overcome the usual tendency of the water in small pipes to become rapidly cooled by radiation, with obvious disadvantages in maintaining

the required degree of caloric within the brooders and the inclosure for the latter. The enlarged pipes are also advantageous in heating the interior of the inclosure, and in the present improved arrangement the supply and return pipes are exposed at the outer end portions of the terminal brooders of the series and also by the spaces between the several brooders; and thus temper the interior of the inclosure for the several brooders, with obvious benefits in maintaining the interior of the brooders in proper heated condition. The series of pipes 10 and 11 pass through the rear vertically-enlarged portion of the brooder, so that the chickens can readily huddle thereunder; but the particular advantage derived from the arrangement of pipes passing through the brooders as set forth and heating the interior of the inclosure for the brooders is that the interior of each brooder of the series will be more evenly and equally heated and cause the chickens to have a natural inclination to occupy different parts of the full floor area of each brooder.

Each brooder has a particular construction which assists in causing the heat from the pipes passing therethrough to circulate equally within the inclosure of the same, and for this purpose a deflecting-board 15 is horizontally disposed on the pipes, and as the latter are located below the top of the brooder a chamber is formed above said board. The board 15 causes the heat to be deflected downwardly and has an upwardly-projecting strip 16, which takes up the distance between the top surface of the board and the upper edges of the ends of the brooder, the board near its opposite end, as well as the strip 16, having ventilating-openings 17 therein. Each brooder is also provided with a hinged cover 18, having transparent panels 19 therein for inspecting the interior of the brooder. When the cover 18 is closed, the upper edge of the strip 16 contacts therewith, and a chamber is thus provided above the pipes, which is constructed to serve as a ventilating-chamber, having communication with the exterior through the medium of openings 20 in the upper portion of the rear side of the brooder. The air from the exterior of the brooder enters the ventilating-chamber through the openings 20 and then passes into the interior of the brooder through the openings 17, formed in the board 15 and the strip 16. By this means a very effective ventilation is set up in each brooder, with advantages in the preservation and healthful growth of the chickens. It will also be seen that the disposition of the ventilating-chamber as set forth causes the fresh air to become thoroughly heated before entering the main body of the brooder, thereby avoiding chilling and injury to the chickens.

The rear side of the brooder also has transparent panels 21 therein, and the front side of each brooder on the inner surfaces of the ends has strips 22 secured thereto to form

vertical guide-spaces 23, in which is removably fitted a frame 24, carrying loosely-depending felt or other cloth strips 25 to form an air-tight closure at the front of the brooder, but at the same time permit the chickens when they are old enough to pass in and out of the brooder-inclosure in the day-time. The frame 24 is applied to the innermost guides 23, and the outer guides 24 are adapted to removably receive a frame 26, having a screen-wire covering 27, which will be used at night to prevent the chickens from running out of the brooder and also the entrance into the brooder of rats and mice. This screen-guard is also employed to close the front of the brooder during the first two days of the existence of the chickens; but it will be understood that it can be removed at any time during the day, if desired and found necessary.

One of the main advantages of the present brooding system or arrangement of pipes in relation to the series of brooders is that in the event of a sudden lowering of temperature during the night the chickens will not be injured, in view of the fact that they can huddle under the pipes and become properly and healthfully warmed, whereas in the ordinary brooder constructions using a single pipe through which heat or hot water flows the temperature cannot be maintained at such a degree in the rear of the brooder as to be beneficial or affect as large a space.

Provision is also made in the boiler for pipes similar to the pipes 10 and 11, extending in opposite directions or on opposite sides of the location of the boiler. The means for this purpose consists of a series of taps or tubular connections 28 at the upper and lower portions of the boiler, as clearly shown in Fig. 1. In this arrangement of the pipes the operation and advantages heretofore stated will be precisely the same. It will be seen from the foregoing that a brooder and means for heating a series of the latter is provided having superior advantages and that various temperature conditions and contingencies will be met and accommodated with benefit to the chickens and without the necessity of close care and watchfulness by an attendant.

Having thus fully described the invention, what is claimed as new is—

1. The combination with a boiler, of a series of brooders arranged in longitudinal alinement with the ends thereof in contiguity and separated by intervening spaces, each of the series of brooders having its rear portion vertically extended and the upper part of the rear wall formed with ventilating-openings, a ventilating-chamber in the rear vertically-extended portion of each brooder formed with a front perforate flange, the openings in the upper rear part of the back of the brooder solely communicating with the ventilating-chamber, and a hinged lid or cover movable downwardly over and upwardly from the forward portion of each brooder and the ven-

tilating-chamber thereof, and a series of supply and return pipes disposed in the same horizontal plane and parallel and extending through the upper rear portions of the brooders and connecting the latter in immovable position, the bottoms of the ventilating-chambers of all the brooders being supported on the said pipes and closely held between the latter and the tops of the brooders, and the portions of the pipes in each brooder being arranged at an elevation above the bottoms of the latter.

2. A brooder having an increased vertical extent at its rear portion, a series of horizontally-disposed pipes extending through the said rear portion of the brooder above the bottom of the latter, the upper portion of the

rear wall of the brooder having ventilating-openings therein, a ventilating-chamber supported on the pipes and closely held between the latter and the top of the brooder and formed with a front perforate flange, the openings in the upper portion of the back of the brooder solely communicating with the ventilating-chamber, and a hinged lid or cover movable downwardly over and upwardly from the forward portion of the brooder and the ventilating-chamber.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC MORROW.

Witnesses:

JOHN H. SCHADY,
D. L. HAMAKER.

Corrections in Letters Patent No. 736,423.

It is hereby certified that Letters Patent No. 736,423, granted August 18, 1903, upon the application of Isaac Morrow, of Manheim, Pennsylvania, for an improvement in "Brooders," was erroneously issued to Isaac Morrow and Clayton N. Hostetter, as joint owners of said invention; whereas the patent should have been granted to said Clayton N. Hostetter, he being sole owner of the entire interest as shown by the assignments of record in the Patent Office; also that the words "one-half" in line seven of the grant, and in the heading to the printed specification should be stricken out; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 8th day of December, A. D., 1903.

[SEAL.]

F. I. ALLEN,
Commissioner of Patents.

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