

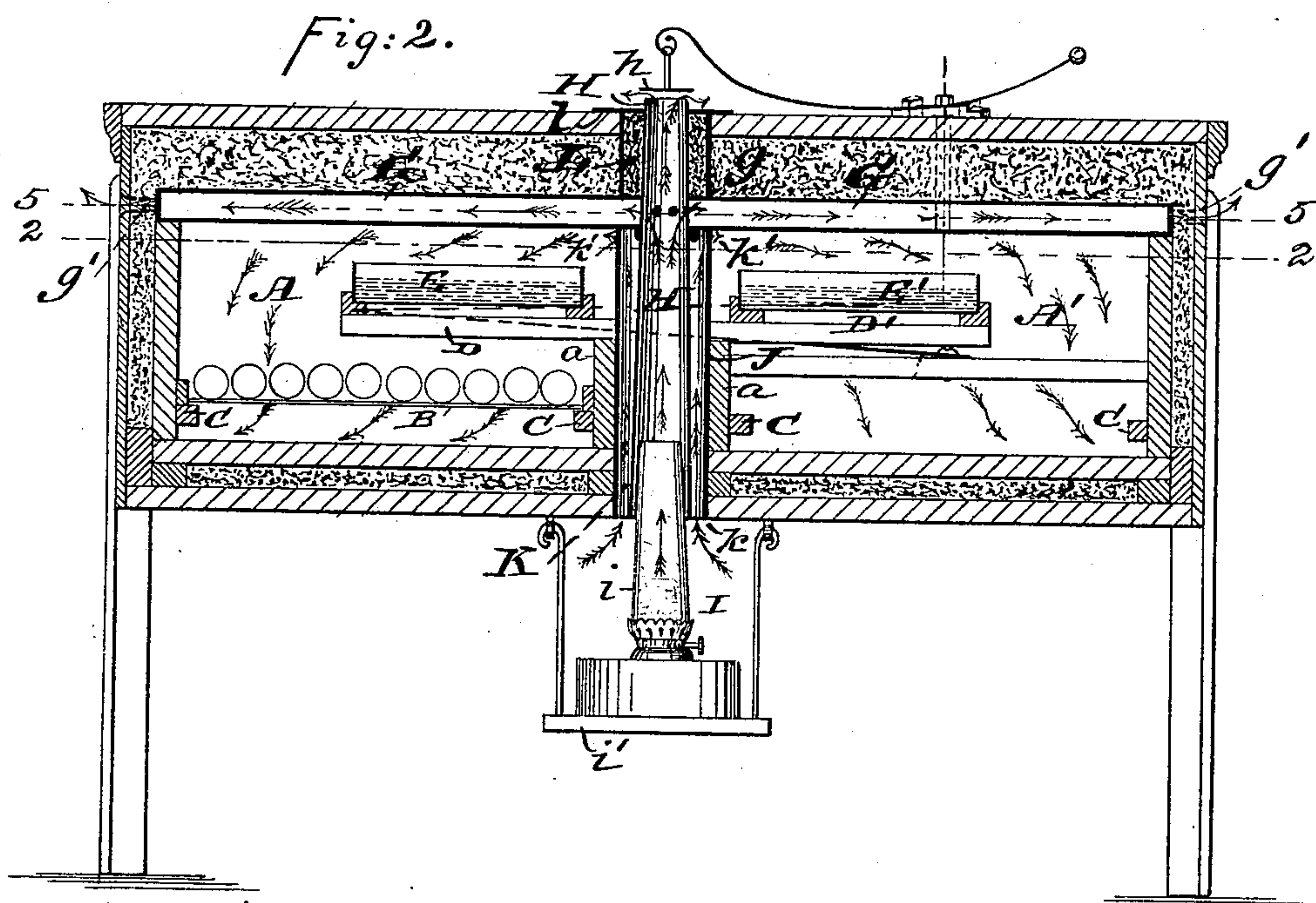
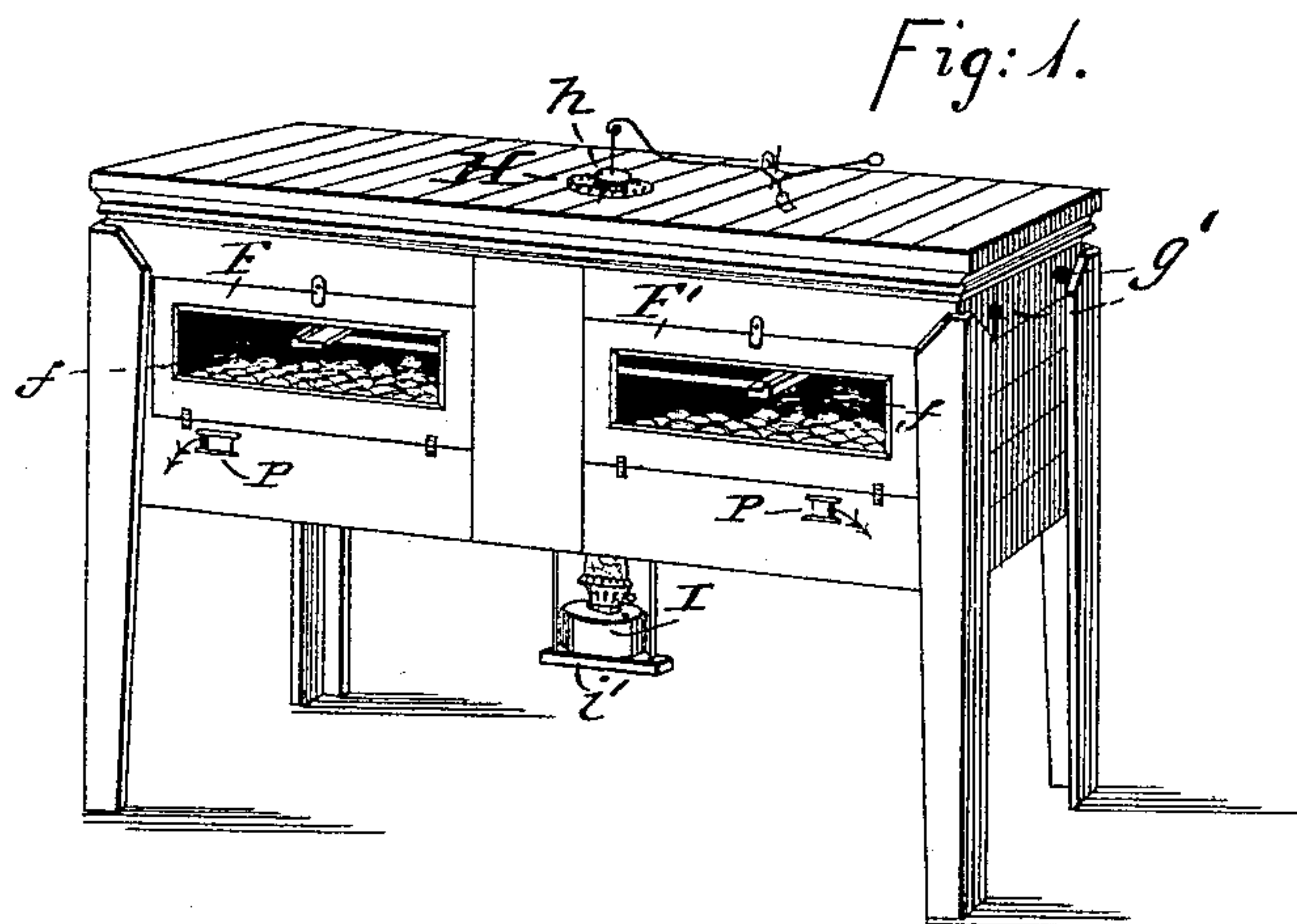
(No Model.)

2 Sheets—Sheet 1.

J. L. NIX.  
INCUBATOR.

No. 386,155.

Patented July 17, 1888.



WITNESSES:

*H. Adams.*  
*J. K. Worthington.*

INVENTOR

*James L. Nix.*  
BY *C. D. Moody.*  
ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

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Fig:3.

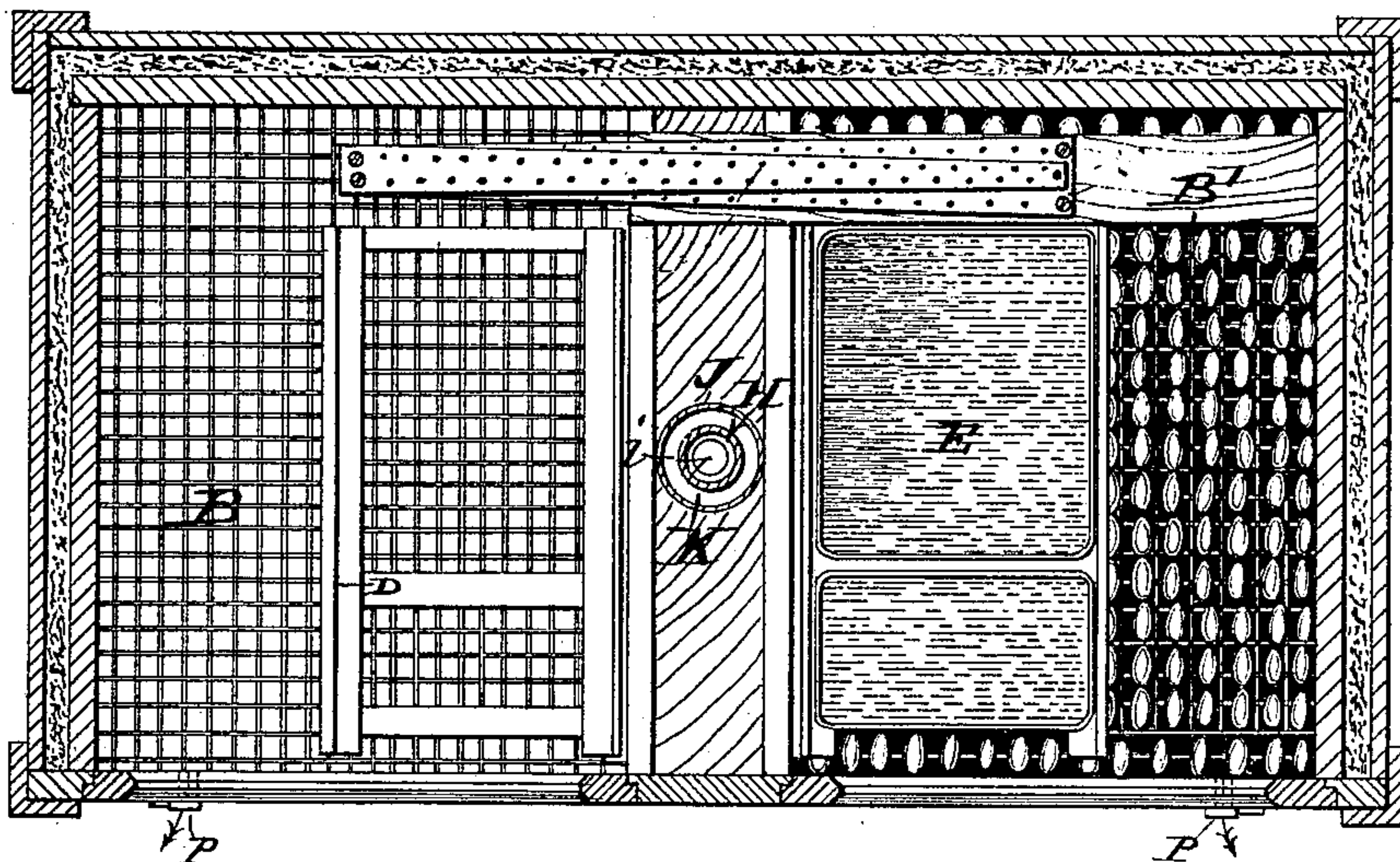


Fig:5.

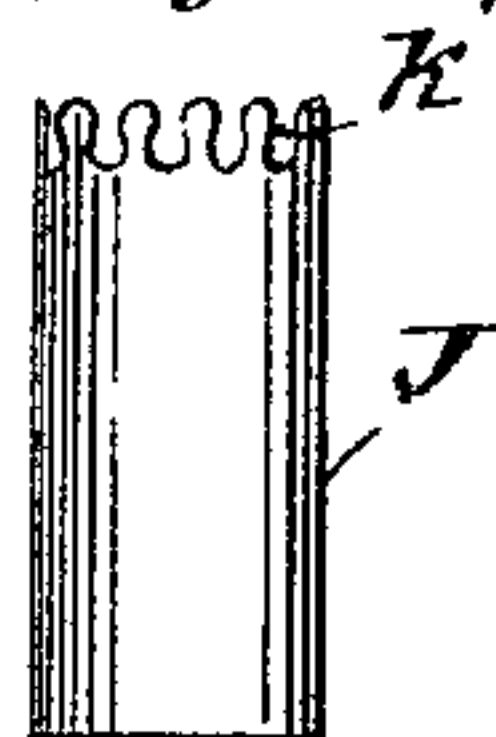
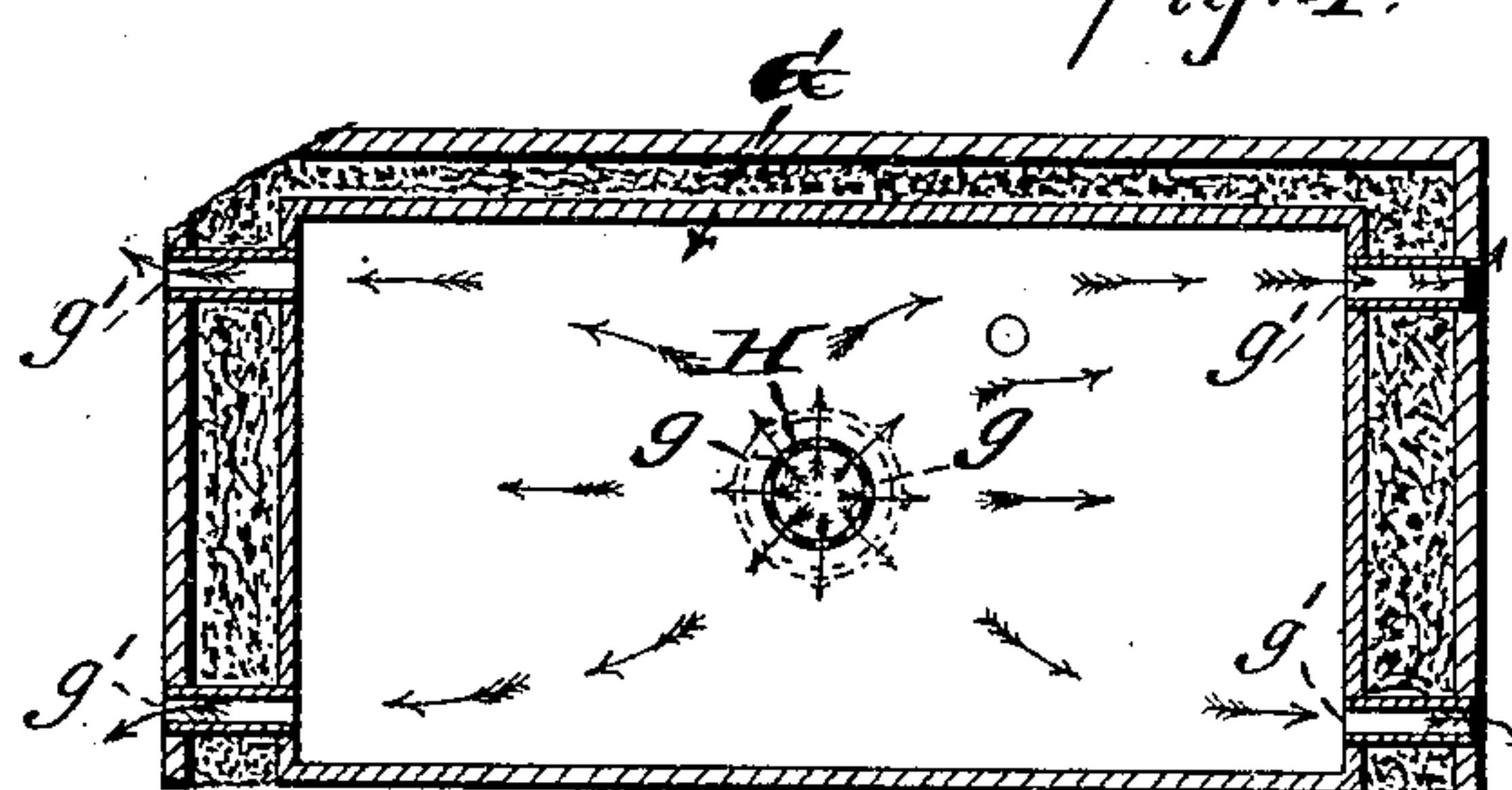


Fig:4.



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# UNITED STATES PATENT OFFICE.

JAMES L. NIX, OF CARPENTER, ILLINOIS.

## INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 386,155, dated July 17, 1888.

Application filed October 18, 1887. Serial No. 252,674. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES L. NIX, of Carpenter, Madison county, Illinois, have made a new and useful Improvement in Incubators, of which the following is a full, clear, and exact description.

My invention relates to improvements in incubators; and the novelty consists in the construction of the several parts and in their combination together as a whole, all as will be hereinafter more fully described, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a view in perspective of the improved incubator. Fig. 2 is a vertical longitudinal central section of the incubator. Fig. 3 is a horizontal section on the line 2 2 of Fig. 2. Fig. 4 is a horizontal section on the line 5 5 of Fig. 2. Fig. 5 is a side elevation of the tube through which air-current passes into the egg-chamber. The various views are respectively upon different scales.

The same letters of reference denote the same parts.

The egg-chamber is preferably divided vertically into two compartments, A A', by means of the partitions *a*, which preferably extend from the front to the back of the chamber, and from the bottom to the rests for the water-pans, which will be hereinafter described. These partitions are introduced to prevent the eggs from receiving too much heat by radiation, and, incidentally, they are useful as supports. They rest upon the floor of the egg-chamber, and preferably have the space between them covered over to prevent the chickens from falling. They usually are made of inch boards. Any other form of shields adapted to effect the same purpose may be substituted for these partitions—as, for instance, a packing of any non-heat-conducting substance around the air-pipe.

BB' are the egg-trays resting upon the slides C, which preferably slant slightly downward from front to back.

DD' are rests for the water-pans E E', respectively.

FF' are doors opening into the egg-chamber, and they are preferably provided with windows *f*, having a double pane, with an air-space between the panes. The walls of the egg-

chamber at the ends and back of the chamber are preferably double and packed with a substance like sawdust, which is a non-conductor of heat. The egg-compartments are not divided from each other above the partitions above named. The space directly above the egg-chamber is occupied by the heat-chamber G, which is constructed of sheet metal, and which, at *g*, Fig. 2, is connected with the flue H, Figs. 2 and 4, through which the heat is supplied to the chamber G, and at *g' g'* are outlets through which the heat-currents entering the chamber G can pass out therefrom. Between the chamber G and the top of the incubator-casing a packing of sawdust is introduced, but not around the heat flue H. An ordinary coal-oil lamp, I, Figs. 1 and 2, is the means employed in heating the incubator. It is provided with a chimney, *i*, and it rests upon the stirrup or bracket *j*. The chimney should enter the lower end of the flue H, which extends from the bottom of the incubator upward, and preferably through its top. The chimney may fit loosely into the flue to allow the outer air to enter between the chimney and flue. Below the chamber G the flue H is surrounded by a tube, J, thereby forming an annular air-flue, K, open at its lower end, *k*, to the outer air, and at *k'* opening into the egg-chamber. The tube J may also serve to sustain the chamber G. The heat-currents proceeding from the lamp pass upward through the flue H, and thence, through the openings *g*, into the chamber G, and ultimately they are discharged from the chamber G through the outlets *g'*, which are respectively arranged at the corners of the chamber, to thereby enable the heat to be distributed throughout the chamber. The movement is indicated by the arrows in Fig. 4. At the top of the flue H is a damper, *h*, which, when closed, causes the heat-currents to pass from the flue H into the chamber; but when the damper is raised, as in Fig. 2, the heat-current escapes largely directly upward through the flue H. Above the chamber G, I prefer to surround the flue H with an incombustible substance, L, and above the same to use the plate *l*.

The damper *h* is regulated by a thermostat.

The operation of the incubator is as follows: At the start, the egg-chamber being cold, the



damper *h* will be seated, and the heated products of combustion from the lamp will be passing upward through the flue, and thence into the chamber *G*, and thence through the outlets *g'* to the outer air. At the same time air will pass up through the annular flue *K*, and thereby become heated to the desired temperature, and from the flue *K* and through the openings therein at its upper end the heated air will pass into the egg-chamber, passing partly into the compartment *A* and partly into the compartment *A'*. The eggs are shielded from the heat of the hot-air flue and from the heat radiating downward from the bottom of the chamber *G* throughout its central portion by the water-pans. The air circulates, as indicated by the double-pointed arrows, Fig. 2, over the water-pans, taking up the requisite amount of moisture therefrom, and passing downward around the edges of the water-pans, and over and between the eggs in the trays, and finally passes out from the egg-chamber and incubator through the outlets *P*. The stirrup which supports the lamp is made to be swung sidewise, so that it, when it is desired to remove the lamp, can be displaced from beneath the lamp. When the egg-cham-

ber gets overheated, the thermostat acts to open the damper and thereby permit the heat-current to escape mainly directly upward through the incubator without entering the chamber *G*.

I claim—

1. An incubator, constructed as described, having a central flue open at top and bottom, partly surrounded by an air-flue and communicating with the egg-compartments, a chamber above the egg-compartments communicating with the central flue, and a damper controlling the said central flue, substantially as set forth.

2. An incubator having the central heating-flue, *H*, perforated at *g* and partly surrounded by an air-flue, *K*, perforated at its upper end, and thus communicating with the egg-compartments, a heating-chamber, *G*, over the top of the egg-compartments *A A'*, and having outlets *g'*, and the outlets *P* of the egg-compartments, substantially as set forth.

Witness my hand.

JAMES L. NIX.

Witnesses:

C. D. MOODY,  
B. F. REX.