

(No Model.)

J. F. CARR.

INCUBATOR.

No. 395,483.

Patented Jan. 1, 1889.

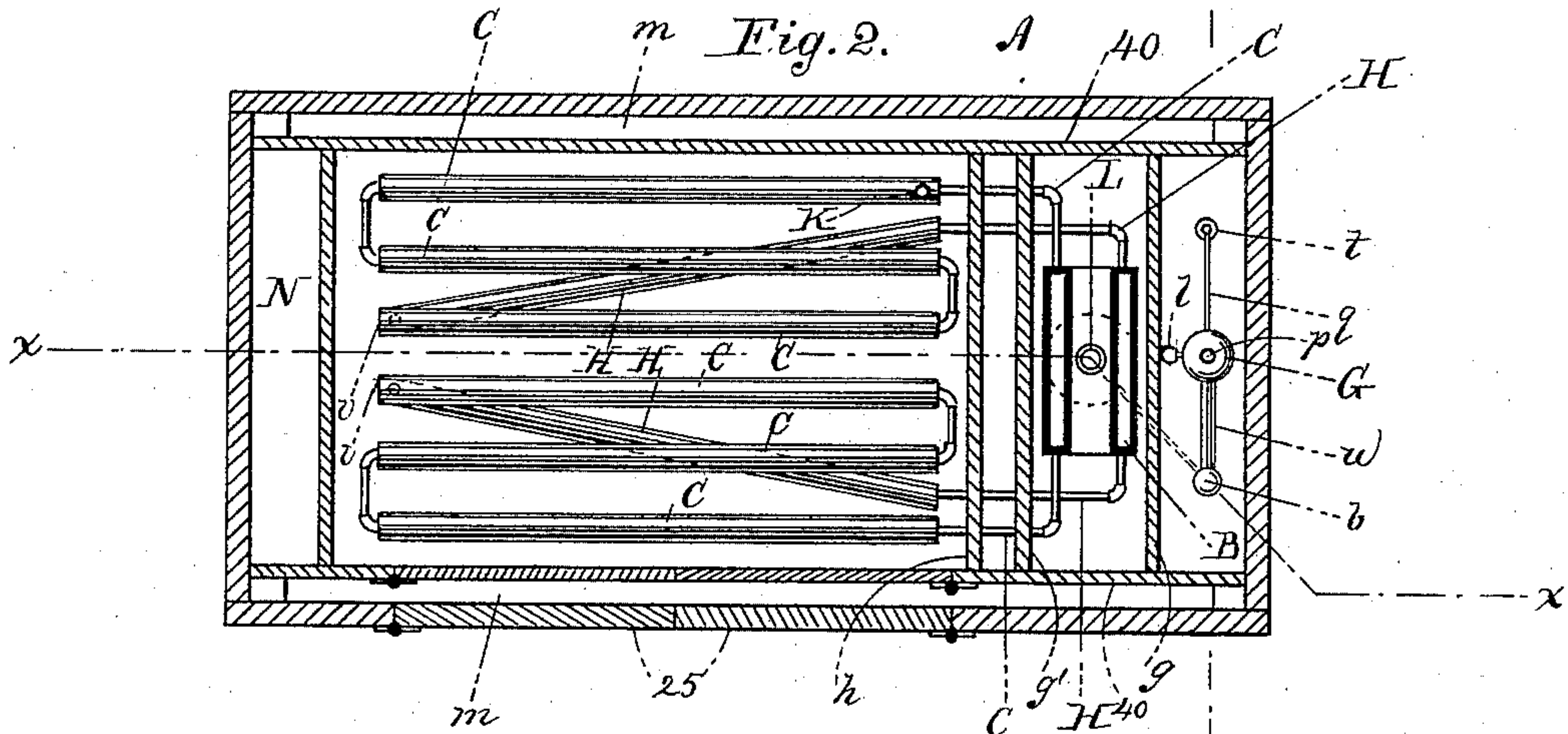
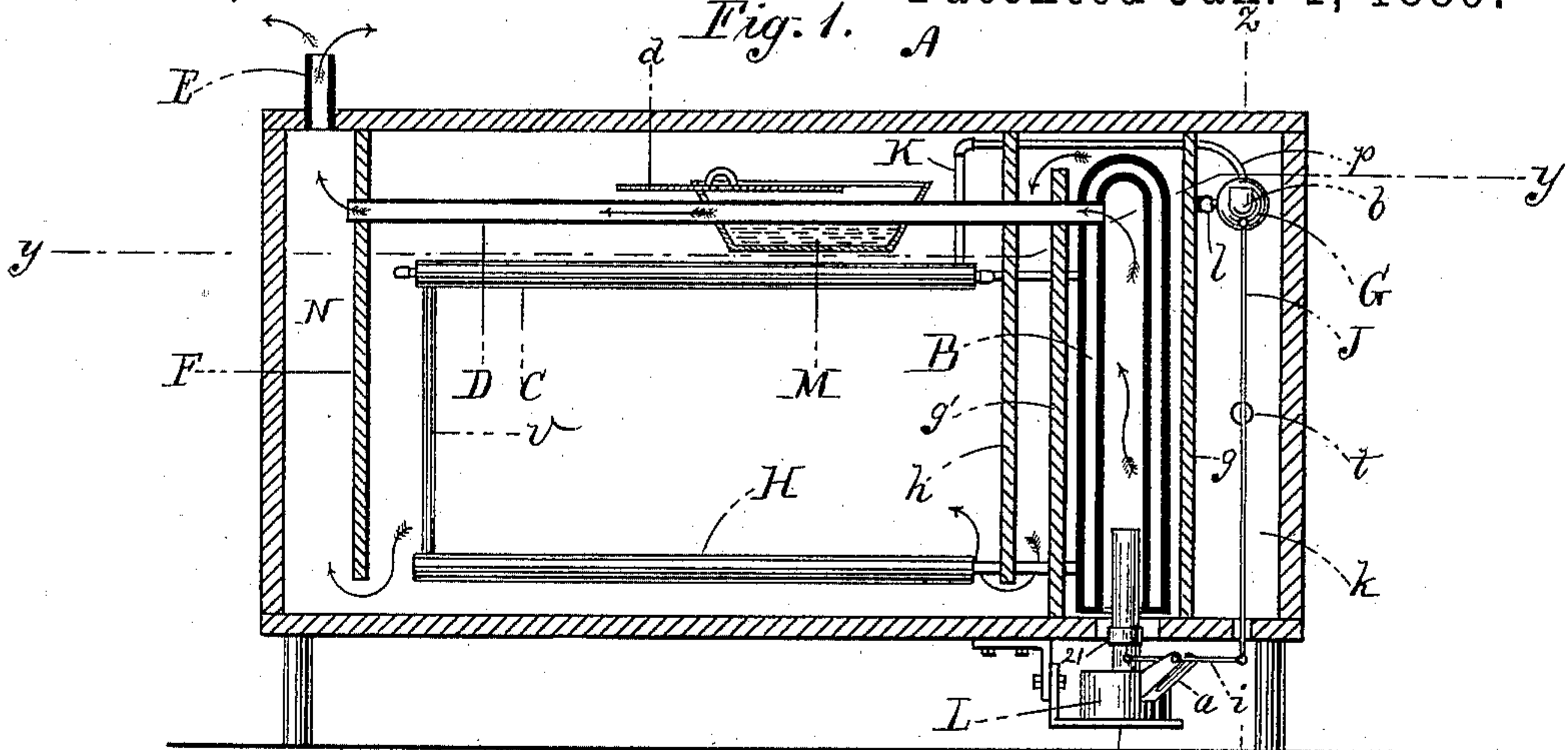
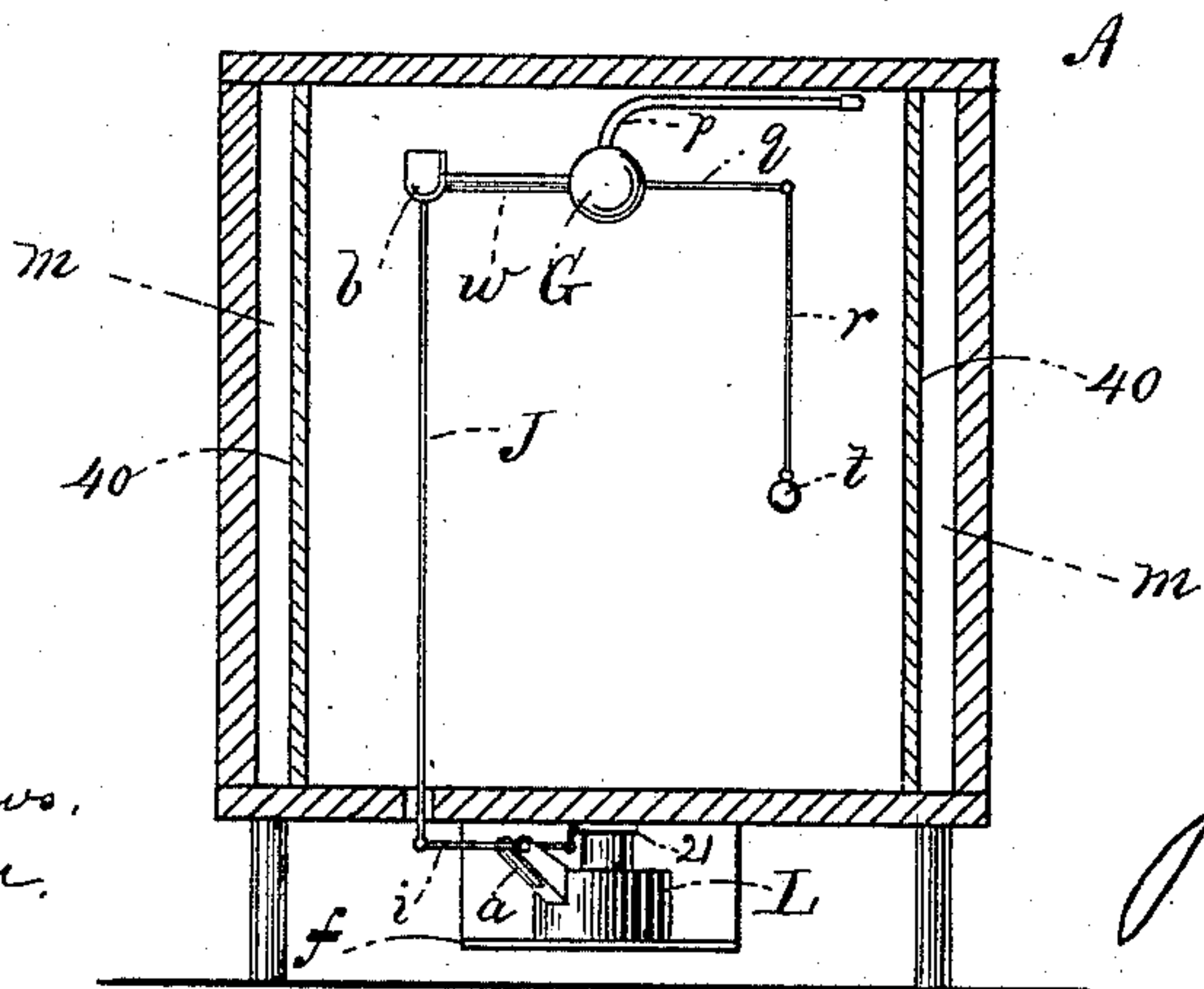


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN F. CARR, OF TIVERTON, RHODE ISLAND.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 395,483, dated January 1, 1889.

Application filed September 8, 1887. Serial No. 249,086. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. CARR, of Tiverton, in the county of Newport, State of Rhode Island, have invented a certain new and useful Improvement in Incubators, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improved incubator, taken on line $x x$ in Fig. 2; Fig. 2, a horizontal section taken on line $y y$ in Fig. 1, and Fig. 3 a vertical transverse section taken on line $z z$ in Fig. 2.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My present invention is designed as an improvement on the incubator shown and described in Letters Patent No. 364,073, dated May 31, 1887; and it consists in a novel construction and arrangement of parts, as hereinafter more fully set forth and claimed, the object being to produce a simpler and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters without a more explicit description.

In the drawings, A represents the body or case, which is provided with the usual air-spaces or insulating-chambers, m .

A U-shaped boiler is disposed in one end of the body and provided at the top with a series of eduction-pipes, C, and at the bottom with induction-pipes H, through which the water circulates. A smoke-pipe, D, leads from the upper portion of the boiler directly through the side walls thereof, said pipe extending longitudinally along the body A above the pipes C and opening into the flue N, connecting with the chimney E. Vertically-arranged pipes v connect the eduction-pipes C with the induction or return pipes H. A pendent partition, F, is secured to the inner side of the top at the rear of the body A, and extends to within a short distance of the bottom of said body, forming with the end

wall of the body the flue N for the chimney E. The boiler B is inclosed in a chamber formed of the transversely-arranged partitions g, g' , and 40, the partition g' extending to within a short distance of the top of the body A. A partition, h , arranged in the same manner as the partition F, is disposed near the partition g' , and forms with it a flue or conduit for conducting the hot air from the boiler-chamber into the bottom of the body and under the pipes H, so that it will circulate freely among the eggs.

An evaporating-pan, M, is disposed on the pipes C, and is provided with a sliding cover, d , by which the amount of vapor or moisture allowed to escape from said pan may be regulated. A vertical pipe, K, is connected with one of the pipes C and extends horizontally through the tops of the partitions $h g$ and into a chamber, k , formed by the partition g and the end wall of the body. A hollow metallic ball, G, is disposed within the chamber k , and is pivoted by means of a ball-and-socket joint, l , to the partition g , said ball being connected with the pipe K by means of a nipple (not shown) and a flexible tube, p . (See Figs. 1 and 3.)

Secured to one side of the ball G there is a horizontally-arranged rod, q , to the outer end of which is pivoted a rod, r , provided with a counterbalancing-weight, t . (See Fig. 3.) A horizontally-arranged metallic tube, w , enters the ball G on the side opposite the rod q and is provided at its outer end with a cup, b , to which is secured a vertically-arranged rod, J. A lamp, L, is disposed on a vertically-adjustable stand beneath the boiler B in such a position that the hot air and products of combustion from its chimney will pass up into the chamber formed by the sides of the boiler, and thence through the pipe D into the flue N of the chimney E. A horizontally-arranged lever, i , is pivoted in an arm, a , on the lamp L, the outer end of said lever being jointed to the lower end of the rod J, and its inner end connected with a sleeve, 21, which is fitted to slide vertically on the wick-tube of the lamp in the usual manner. The front of the body is provided with doors 25, through which the drawers or racks containing the eggs may be passed.

In the use of our improvement, the lamp L

being lighted and adjusted under the boiler B by means of the stand *f*, the water in the boiler will be heated and pass through the eduction-tubes C down through the tubes *v*,
 5 and thence through the return-tubes H into the boiler again to be reheated. In case the water in the boiler becomes too hot or the heat in the incubator too great, the water will be forced through the pipes K *p* into the ball
 10 G, and thence through the pipe *w* into the cup *b*.

It will be obvious that when the temperature rises and a sufficient quantity of water is forced into the ball G and from thence into
 15 the cup *b* to depress said cup, the rod J secured thereto will be forced downward accordingly, thereby depressing the outer end of the lever *i*, forcing the sleeve 21 upward over the wick-tube, and reducing the flame of
 20 the lamp in a manner which will be readily obvious without a more explicit description. The temperature of the water in the boiler being thus reduced, the water in the cup *b* will flow back into the ball *g*, thereby permit-
 25 ting the cup and lever *i* to be raised by the counter-balance or weight *t*, the sleeve 21 being at the same time depressed and the flame of the lamp increased. It will be therefore seen that the temperature of the water in the
 30 boiler and pipes is regulated automatically. By the use of the ball-and-socket joint *l* as a fulcrum for the lever formed by the ball G, tube *w*, and rod *q* the friction is reduced, and by means of the counter-balance or weight *t*
 35 the cup *b* is raised and the sleeve 21 depressed as the temperature of the water in the boiler falls.

It is generally understood that the atmosphere within an incubator during the process of hatching eggs becomes charged or heavy
 40 with gases given off by the eggs and falls to the bottom of the incubator.

By using the pendent partition F to form the flue N a constant circulation of air is created at the bottom of the incubator, causing
 45 the gases to pass into said flue and out through the chimney E.

The pipe K may be inserted directly into the boiler instead of into the pipes C, if desired.
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Having thus explained my invention, what I claim is—

1. The combination of an egg-chamber having end walls provided with openings near their lower ends, a hot-air chamber at one end
 55 of the egg-chamber, a heating device in the hot-air chamber, and a partition-wall between the wall of the egg-chamber and the heating device, said partition-wall extending nearly
 60 to the top of the hot-air chamber.

2. The combination of an egg-chamber, a hot-air chamber, a heating device within the hot-air chamber, and a conduit open at its upper end to communicate with the hot-air
 65 chamber, and also open at its lower end to communicate with the egg-chamber, whereby a continuous supply of hot air may be conveyed from the hot-air chamber to the egg-chamber, substantially as and for the purpose set forth.

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Witnesses:

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