

E. S. RENWICK.
Chicken-Brooder.

No. 215,070.

Patented May 6, 1879.

Fig. 1.

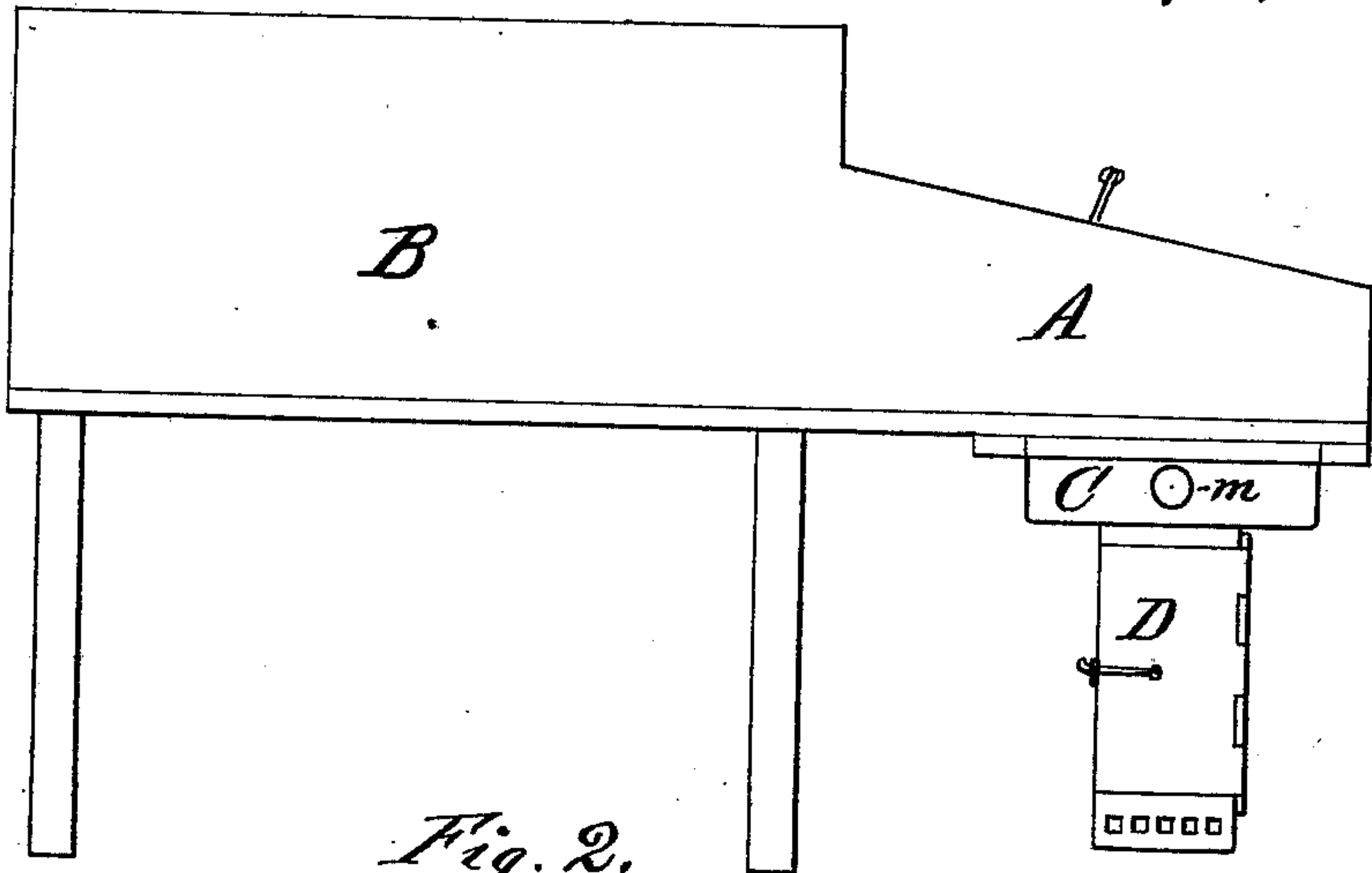


Fig. 2.

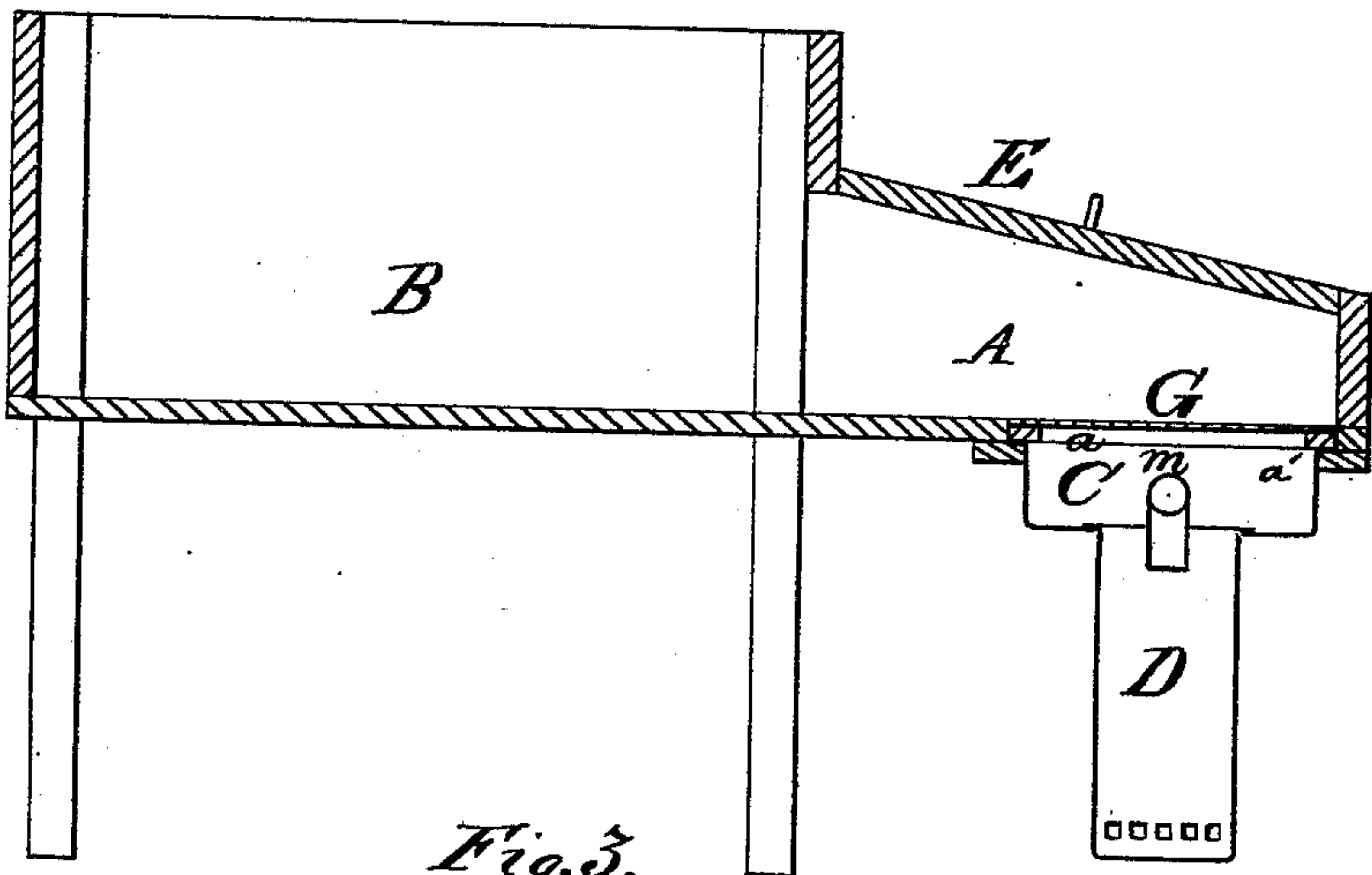
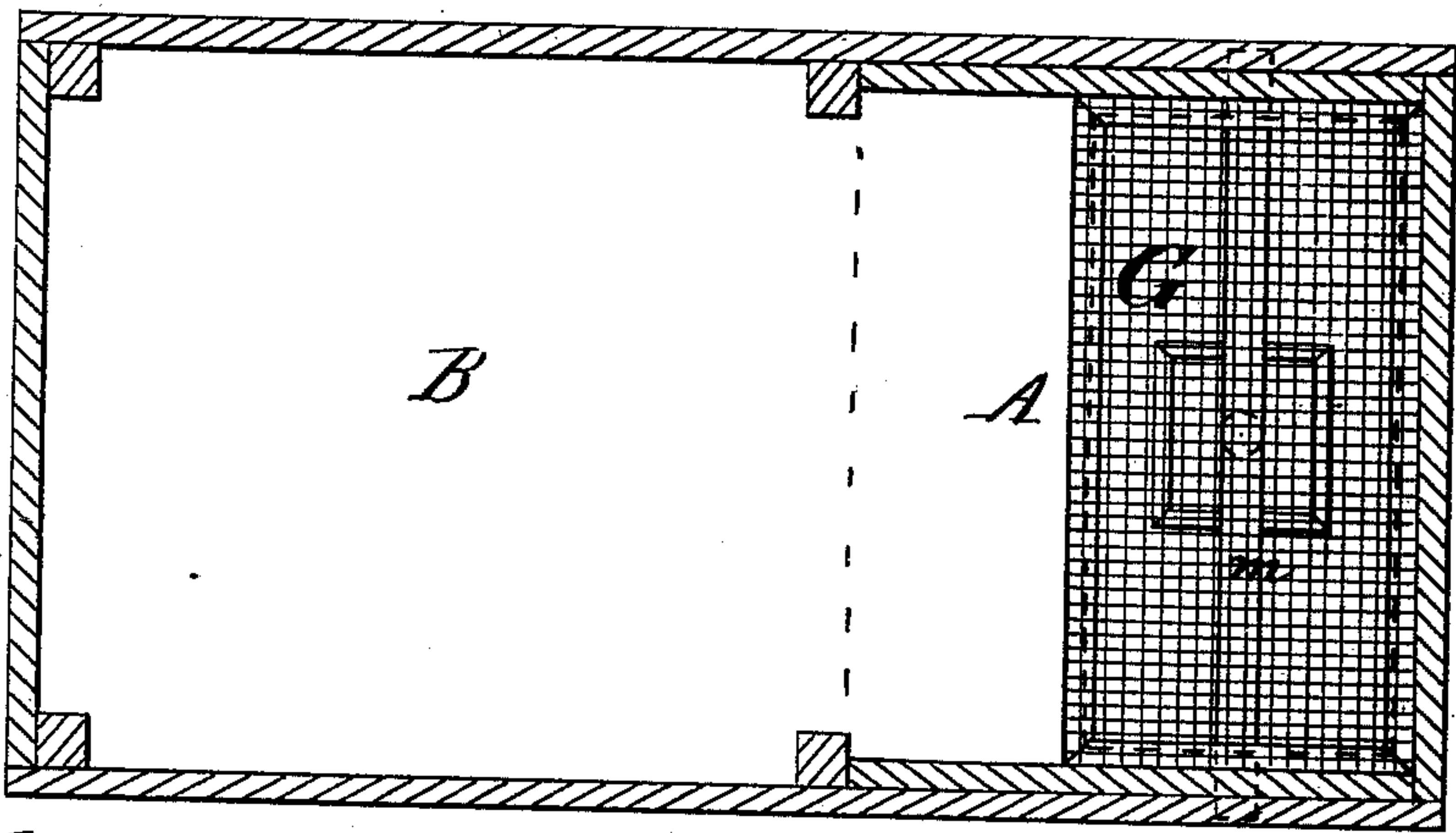


Fig. 3.



Witnesses.

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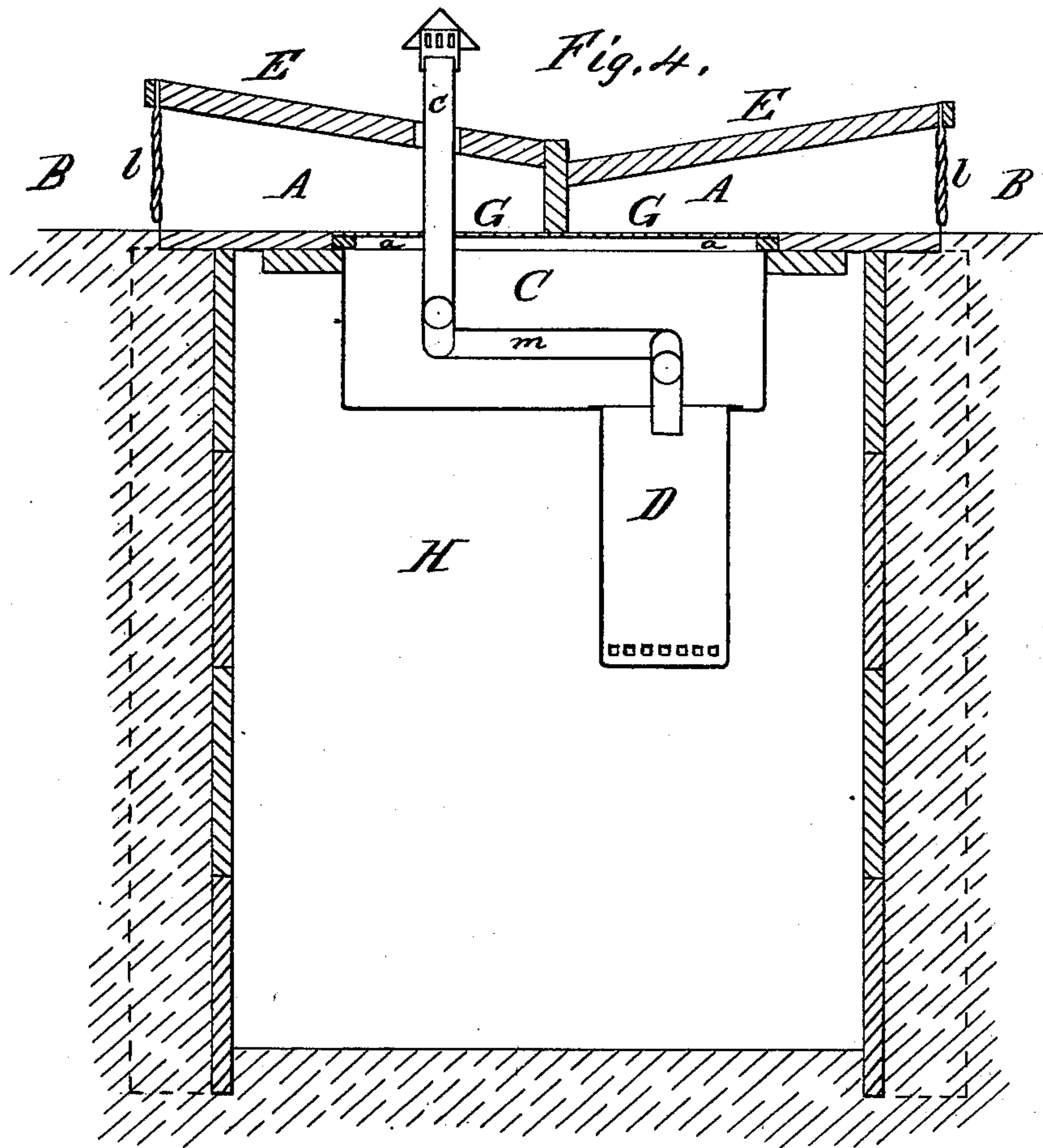
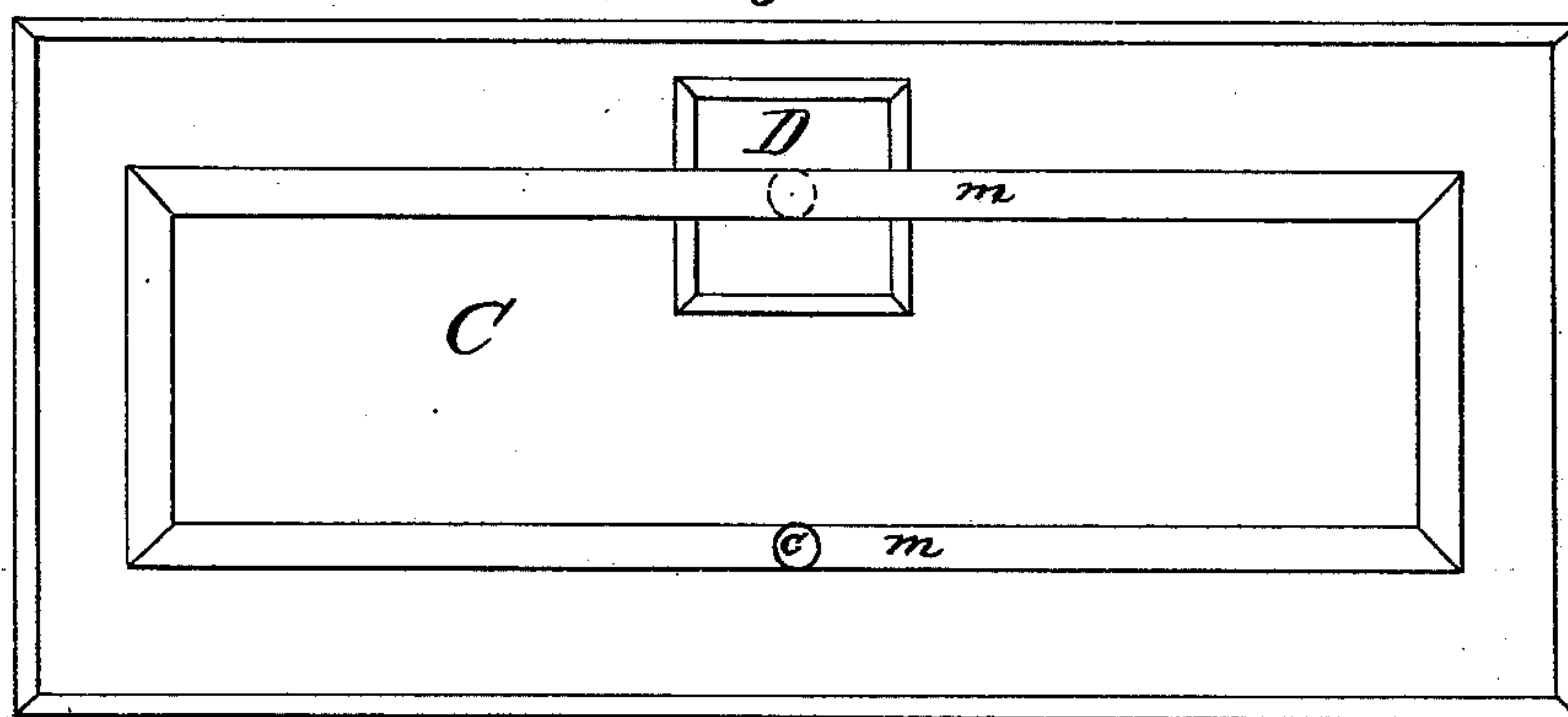


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD S. RENWICK, OF MILLBURN, NEW JERSEY.

IMPROVEMENT IN CHICKEN-BROODERS.

Specification forming part of Letters Patent No. **215,070**, dated May 6, 1879; application filed August 5, 1878.

To all whom it may concern:

Be it known that I, EDWARD SABINE RENWICK, of Millburn, in the county of Essex and State of New Jersey, have made an invention of certain new and useful Improvements in Brooders for Brooding Chickens; and that the following is a full, clear, and exact description and specification of the same.

The object of this invention is to furnish a convenient and effective means of covering, warming, and protecting chickens which have been hatched artificially; and to this end the invention consists of certain combinations of devices, which are recited in the claims at the close of this specification.

In order that the invention may be fully understood, I have represented in the accompanying drawings, and will proceed to describe, a primary brooder embodying my invention.

Figure 1 of said drawings represents a view, in perspective, of the said brooder. Fig. 2 represents a vertical longitudinal section of the same. Fig. 3 represents a plan of the same with the brood-cover removed. Figs. 4 and 5 represent modifications of my brooder.

The brooder, as represented in the accompanying drawings, is composed of six principal parts—viz., the brooding-chamber A, the run B, the hot-air chamber C, the furnace D, the brood-cover E, and the perforated or ventilating-floor G of the brooding-chamber. The brooding-chamber A and run B adjoin, so that the chickens which are inclosed in the run can run into the brooding-chamber for warmth. The brooding-chamber is inclosed by three sides, and the run B is in this case a simple inclosed chamber with an open top, to which either glass or a wire net is applied to prevent the escape of the chickens, according to the condition of the weather.

The brooding-chamber is inclosed at top by the inclined brood-cover E, which is removable for cleaning and other purposes, and which, when in use, is, by preference, lined at its under side with some soft or fleecy material as a substitute for the feathers of the hen. The material preferred for this purpose is two-ply carpet tacked to the cover in flutes extending from its higher to its lower edge, so as to form a series of hanging channels in which the chickens can nestle. The floor of the brood-chamber is perforated in whole or in part.

In primary brooders it is preferred to construct the inner half, G, of the floor perforated, and, by preference, of wire-cloth, which, for convenience of removal, is attached to a frame, *a*, and is strengthened by supporting cross-bars. In primary brooders this wire-cloth may be of the size of mesh used for mosquito-guards in houses, while in brooders for larger chickens the size of the mesh may be increased; but it should not be of such size that the toes of the chickens can catch in the meshes. Beneath this perforated floor of the brooding-chamber are the hot-air chamber C and the furnace D. The hot-air chamber is a trough, open at the top, and made, by preference, of sheet metal. It is traversed by one or more flues, *m*, which are made of sheet metal, and serve as ducts for the products of combustion. In the present example it has the form of a T, whose branches or arms extend horizontally through the hot-air chamber, and whose stem projects downward into the furnace D.

The furnace D is beneath the hot-air chamber, and is an inclosure adapted to hold a kerosene-lamp, gas-burner, steam-pipes, or other apparatus for furnishing heat.

When a kerosene-lamp is used it is set with its chimney directly beneath the stem of the flue *m*, so that the products of combustion from the chimney may pass into the T-flue and escape at the ends thereof. The lower end of the furnace is perforated at its sides, to permit air to enter both to supply the combustion of the kerosene or other fuel and to ventilate the brooder. The air for the latter purpose, passing upward between the walls of the furnace and lamp-chimney, becomes heated and supplies the hot-air chamber, which is further heated by the radiation of heat from the flue *m*. The warm air thus furnished passes up through the perforated floor G of the brooding-chamber and warms the chickens thereon. The hot air also rises to the under side of the brood-cover E, which is thereby warmed, and it finally escapes into the run B. If the run be partially covered with a cloth or with glass, it is warmed materially by the warm air thus passing through it.

For convenience of applying and removing the lamp, the furnace is made with a door at one of its sides, the door being hung on hinges and

fastened with a catch or wire bolt. It is convenient to use an ordinary kerosene-lamp with a glass chimney, and it is preferred in such case to cover the glass chimney with a shield or cone of tin-plate, to keep the light from affecting the chickens.

For a primary brooder for newly-hatched chickens the brooding-chamber may be twenty-two inches broad and eighteen inches long, with the brood-cover one and a half inch above the floor at its lower side. In such case a kerosene-burner with a flat wick half an inch broad is sufficient, even if the wick be turned down low.

If the brooder be one for chickens four weeks old and upward, the brooding-chamber may with advantage be made much broader, and may be two and a half inches high at its lower side.

I prefer to construct large brooders with two brooding-chambers back to back over a single hot-air chamber heated by a single lamp. Such a brooder may have the cross-section represented at Fig. 4, with the hot-air chamber as represented in plan at Fig. 5, and the flue *m* may have the form horizontally of a square ring terminating in a rising pipe, *c*, which passes through a hole in one of the brood-covers.

With large brooders the floor of the brooding-chamber may be level with the ground, or thereabout, and the run may be an inclosed room on the ground floor, and communicating by a door with a grass run. In such cases the furnace may be dropped into a pit, *H*, of which the brood-chambers form the cover, access being had to the pit at one end by steps covered with a flat door.

If preferred, steam or hot water may be used to supply the required heat, and in such case the pipes may be arranged directly in the hot-air chamber *C*, to which air may be supplied

through perforations in its bottom, and the furnace and flues may be omitted.

In warm weather, when artificial heat is not required, the air ascending through the perforated floor keeps the chickens supplied with fresh air and tends to prevent smothering.

In order that the brood-chamber may be warmer, I apply a curtain, *l*, Fig. 4, of ordinary worsted fringe, at the higher end of the brood-cover. The pendants of this fringe readily yield to the passage of chickens, but close after them and obstruct the escape of warm air without preventing the passage of a sufficient quantity for ventilation.

I claim as my invention in brooders—

1. The combination, substantially as before set forth, of the brooding-chamber, the brood-cover, and the perforated floor for the brooding-chamber.

2. The combination, substantially as before set forth, of the brooding-chamber, the brood-cover, the perforated floor for the brooding-chamber, and the hot-air chamber beneath the said floor.

3. The combination, substantially as before set forth, of the brooding-chamber, the brood-cover, the perforated floor of the brooding-chamber, and the run communicating with the said brood-chamber.

4. The combination, substantially as before set forth, of the brooding-chamber, the brood-cover, the perforated floor of the brooding-chamber, the hot-air chamber, and the furnace.

In witness whereof I have hereto set my hand this 26th day of July, 1878.

E. S. RENWICK.

Witnesses:

HORACE H. ISAACS,
A. A. COURTER.