

(No Model.)

W. H. DAVIS.
REFRIGERATOR.

No. 291,036.

Patented Jan. 1, 1884.

Fig. 1.

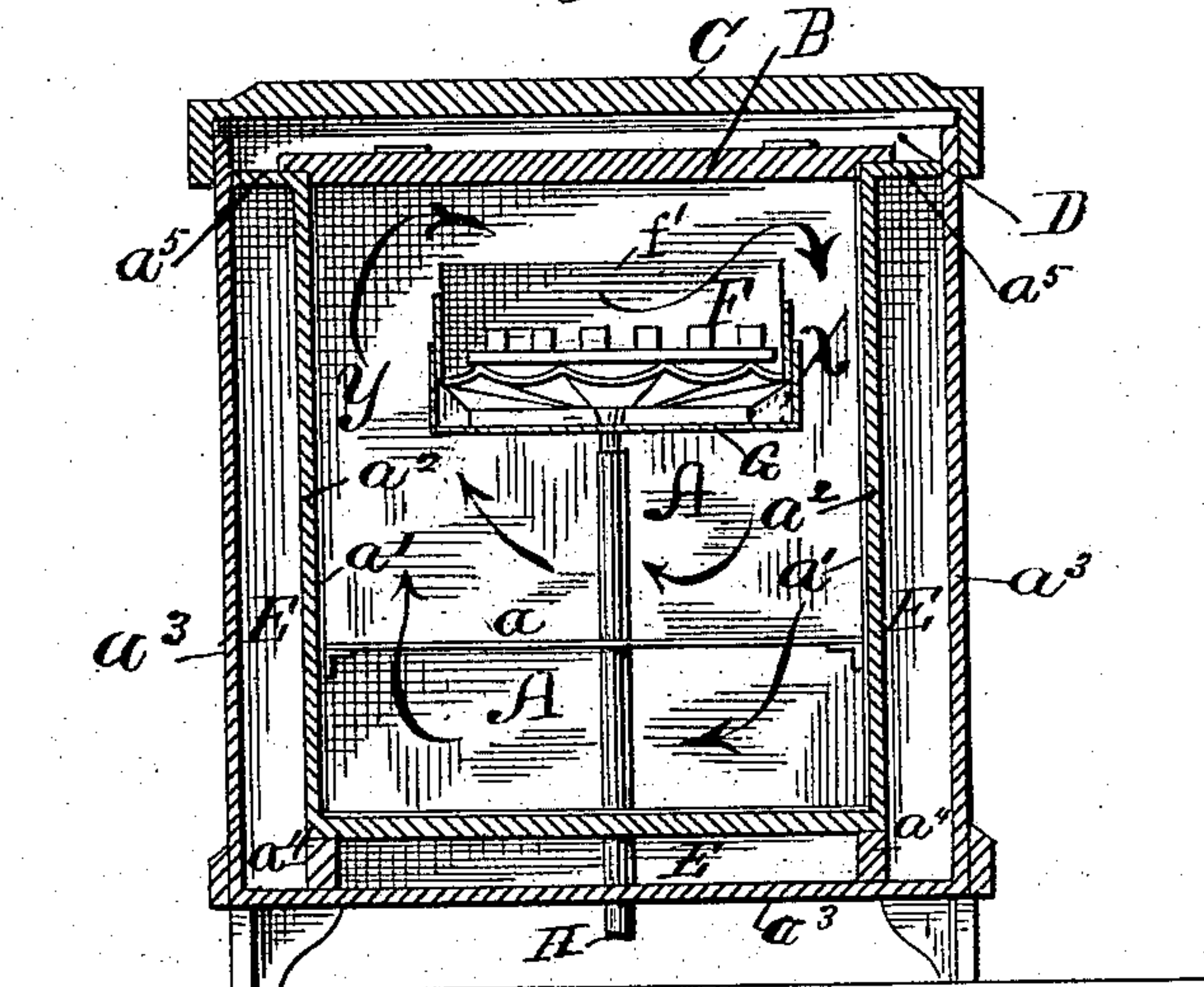


Fig. 2.

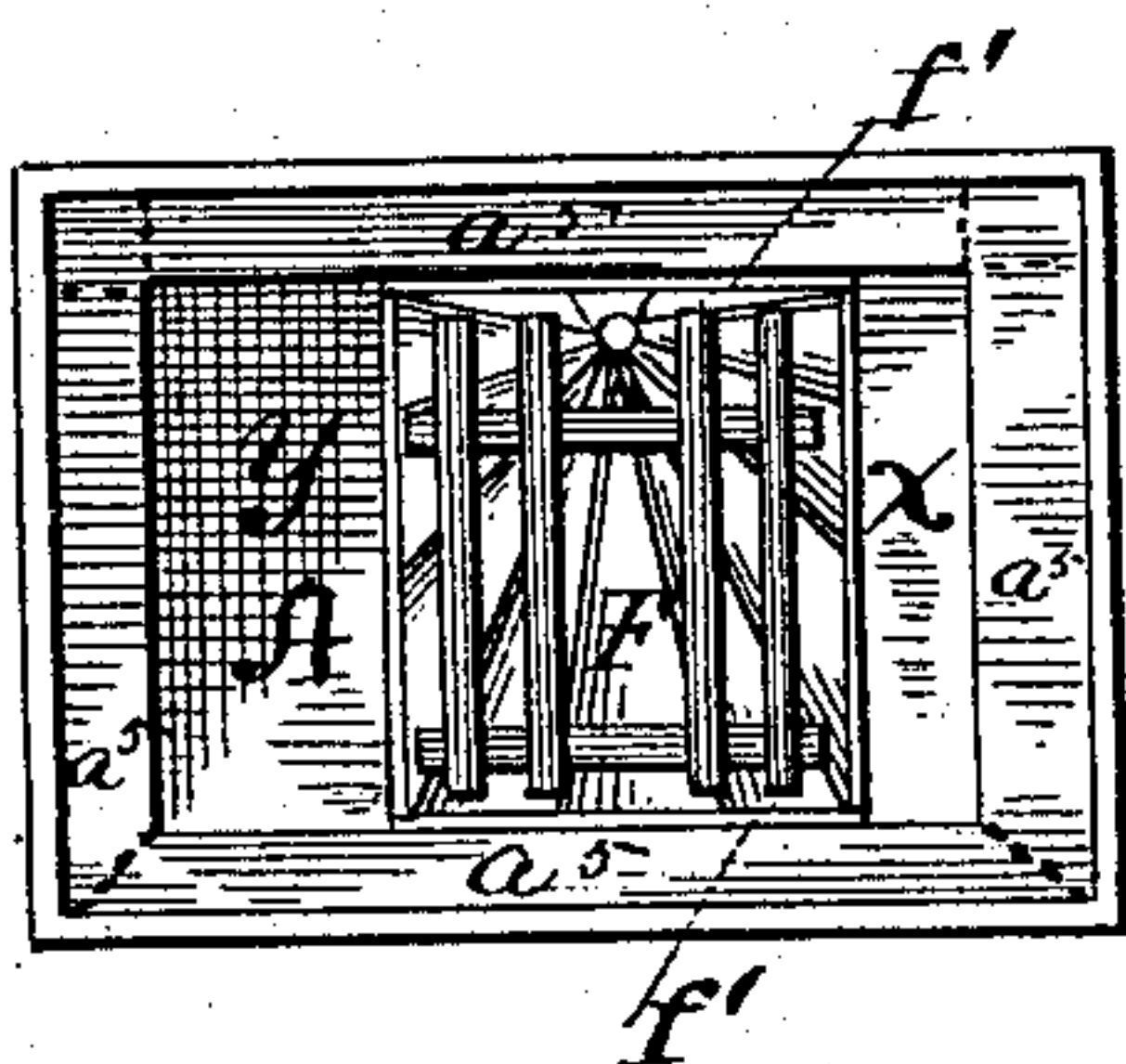


Fig. 3.

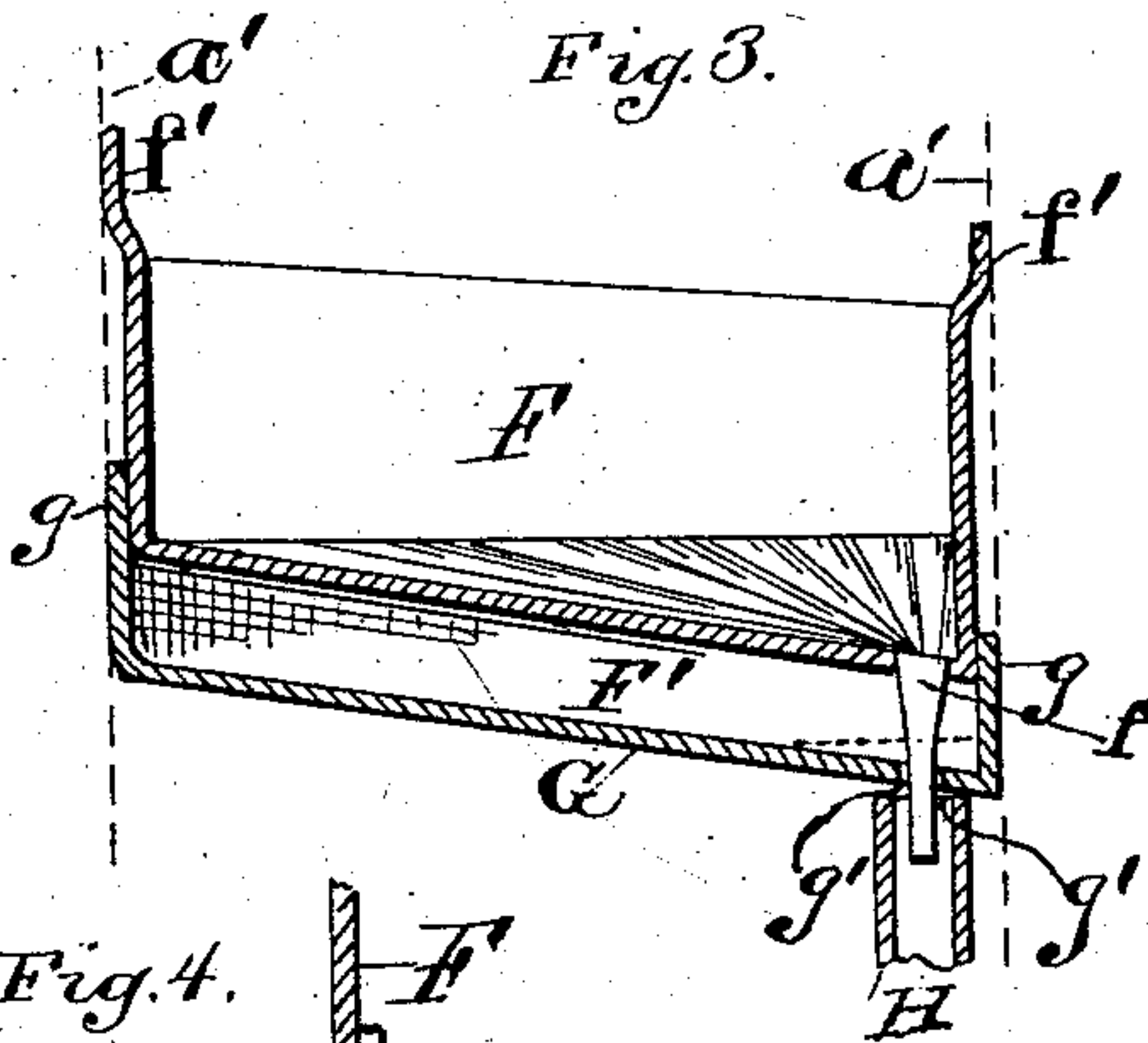
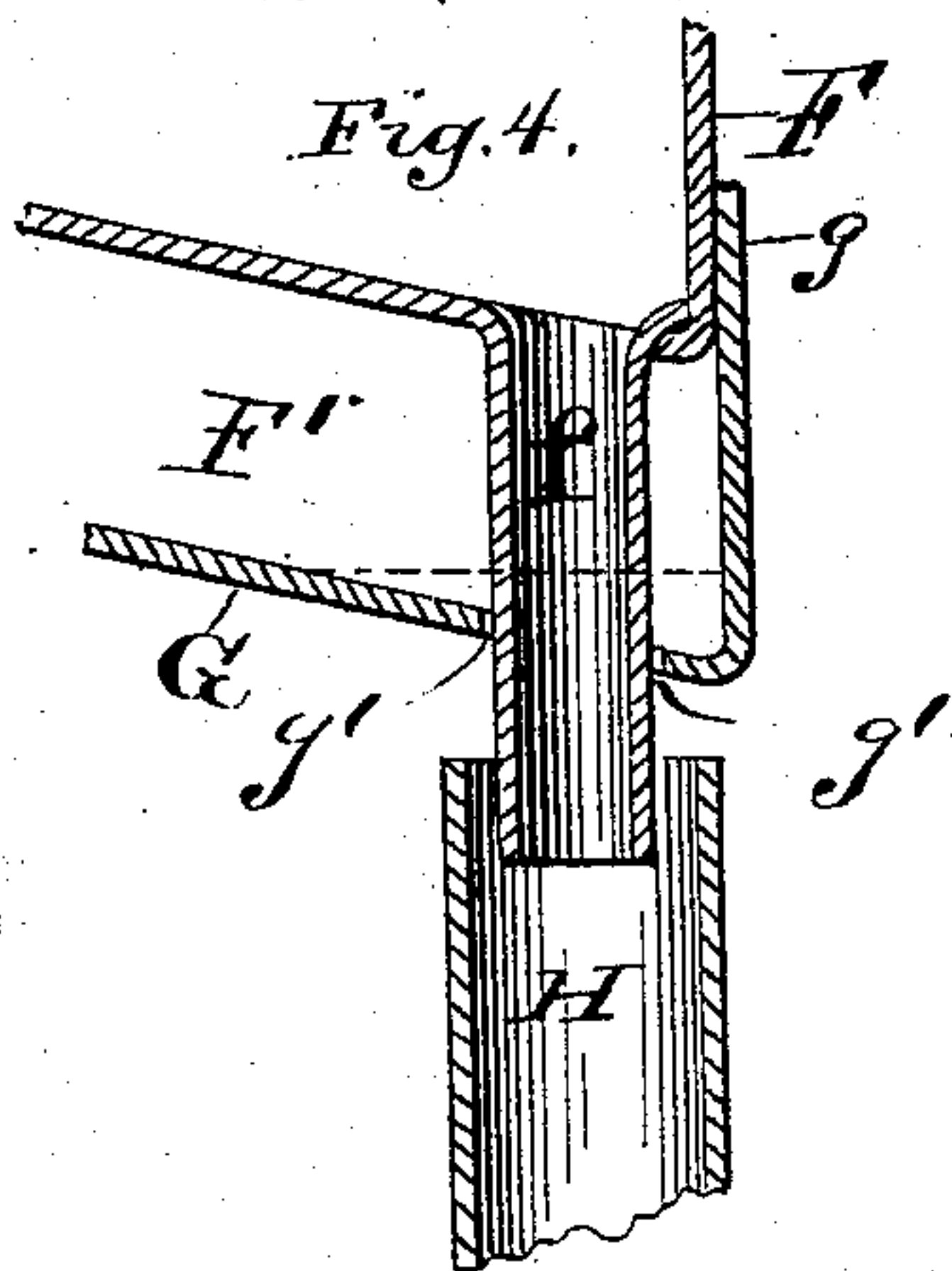


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. DAVIS, OF SYRACUSE, NEW YORK.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 291,036, dated January 1, 1884.

Application filed November 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DAVIS, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a central vertical section of a refrigerator constructed in accordance with my invention. Fig. 2 is a plan of the same with the covers removed. Fig. 3 is a vertical section of the ice-shelf detached, and Fig. 4 is an enlarged section of the drip-tube portion of the ice-shelf.

Like letters refer to like parts in all the figures.

My invention has for its objects the simplification of the construction of refrigerators, the reduction of the cost of their manufacture, and the reduction to the smallest possible quantity of ice required to maintain a desired temperature, and to prevent the collection of dampness within the preserving-chamber, the surrounding and protecting air-chambers, and upon the walls of the same, and of the lower surfaces of the ice-shelf. Other advantages and objects will appear hereinafter.

My invention consists in certain features of construction and arrangement, hereinafter described, and specifically set forth in the claims.

A represents the preserving-chamber of the refrigerator, provided with a shelf, *a*, or it may be with a number of shelves. The walls of the chamber comprise a lining, *a'*, of any suitable non-corrosive metal or other suitable material, and a box or casing of wood-work, *a''*. The casing *a''* is supported in an outer casing, *a'''*, upon cleats *a''''*. At the upper edges of the casing *a''*, and extending therefrom all around outwardly to and against the inner surface of the outer casing, are flanges, *a'''''*, of wood-work, which may or may not, as desired, be covered by the lining *a'*. A cover, B, is fitted to the chamber A, and a cover, C, is fitted to the outer casing, *a'''*, and between the covers is an air-space, D.

By the construction thus far described it will be seen that the preserving-chamber is completely protected by dead-air chambers

E D, that there is no possibility of any communication between the preserving-chamber and the dead-air chambers E, and by extending the sides or walls of the casing *a''*, as shown by dotted lines in Fig. 2, each of the dead-air spaces is separated from the others, so that communication from one chamber to another is prevented.

I am aware that double-walled receptacles are old, and that dead-air chambers in refrigerators are not new; but heretofore, so far as I am aware, they have either been filled with some well-known non-heat-conducting material or the walls of said spaces have been constructed with one or more openings, whereby access of air to one or more of said spaces exists or has existed. I have found by experience that the condensation of moisture upon and within the filling heretofore used tends not only to destroy its non-conducting function, but, in addition, hastens the destruction of the refrigerator as a whole, and I have also observed that, in proportion to the number and size of the openings formed in the walls of the chambers, the resulting communication between the preserving-chamber and the air-spaces produces like unfavorable results. I therefore deem it essential that the air-spaces shall be non-communicative either with the preserving-chamber or, as above indicated, with each other, if desired, and unfilled.

F represents the ice box or shelf, the bottom of which in this instance is grooved or corrugated and slanted to a short drip-pipe, *f*. Upon this bottom are placed the wooden slats for supporting the ice. The front and rear ends of the ice-box are extended above the sides, as at *f'*, and these extensions serve as a means for securing the ice-box in position in the preserving-chamber, by soldering said extensions to the lining *a'*. A dead-air space, F', beneath the ice-shelf F, is formed by securing the flanges *g* of a supplementary box or shelf, G, to the outer walls of the main ice-box, as clearly indicated in Fig. 3. The drip-pipe *f* extends through the plate G and for a short distance into a larger drain-pipe, H. Fine apertures or notches *g'* are made in the edge of the opening in the plate G, through which the drip-pipe *f* passes, so that any condensation of moisture upon the lower or under

surface of the ice-shelf is ultimately collected within the air-space F' and at the lowest point therein, as shown by dotted lines in Fig. 4, where, by reason of the comparative fineness of the apertures or notches g' , said condensed moisture acts as a water-seal, and gradually, as it increases in quantity, oozes through said notches or apertures and trickles down the drip-pipe into the drain-pipe.

By the construction of an ice box or shelf as above described, the following advantages are secured: All dripping upon articles within the preserving-chamber from the ice-shelf is prevented. A confined air-space is provided immediately under the ice, so that its refrigerating or cooling qualities are prevented from taking effect directly beneath the shelf, to the confusion of a desired systematic air-current within the chamber, and such effects are therefore directed in a greater degree, by reason of said confined air-space, in an upward direction, thus creating, stimulating, and maintaining in greater perfection such desired air-current. Finally, the ice box or shelf, together with its air-space and drip-pipe, may be completed and afterward set within and secured to opposite walls of the preserving-chamber. In order to secure a continuous circulation of the air within the preserving-chamber, I arrange the ice-shelf at one side of the center of the chamber, so as to produce a narrow passage, x , and a wide passage, y , at opposite sides of the chamber, whereby the warmer air rising through the wider passage strikes the ice, is condensed, and passes down-

ward through the narrower passage. Thus a complete circulation is established.

If desired, one side (that at the narrow passage x) of the ice shelf or box may be lower than the opposite side, and the entire ice box or shelf may be arranged in the center of the chamber, instead of at one side of the center, as shown.

Having described my invention and its operation, what I claim is—

1. An ice-shelf provided with a drip-pipe, a confined air-space, and a water-seal, substantially as specified.

2. The ice-shelf F , provided with the supplemental shelf G , secured thereto by the flanges g , and with the drip-pipe f , passing through a notched opening in the shelf G , substantially as shown and described.

3. The ice-shelf F , provided with the flanges f' , and the dead-air chamber F' , constructed as described, whereby it may be secured in place in a refrigerator after completion, substantially as specified.

4. The ice-shelf F , provided with the flanges f' and with the dead-air chamber F' , having a notched opening, g' , in combination with the drip-pipe f and drain-pipe H , substantially as shown and described.

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

WILLIAM H. DAVIS.

Witnesses:

JOHN R. COLLINS,

HARRY F. KING.