

C. G. PAGE.
Refrigerator.

No. 31,901.

Patented April 2, 1861.

Fig. 1.

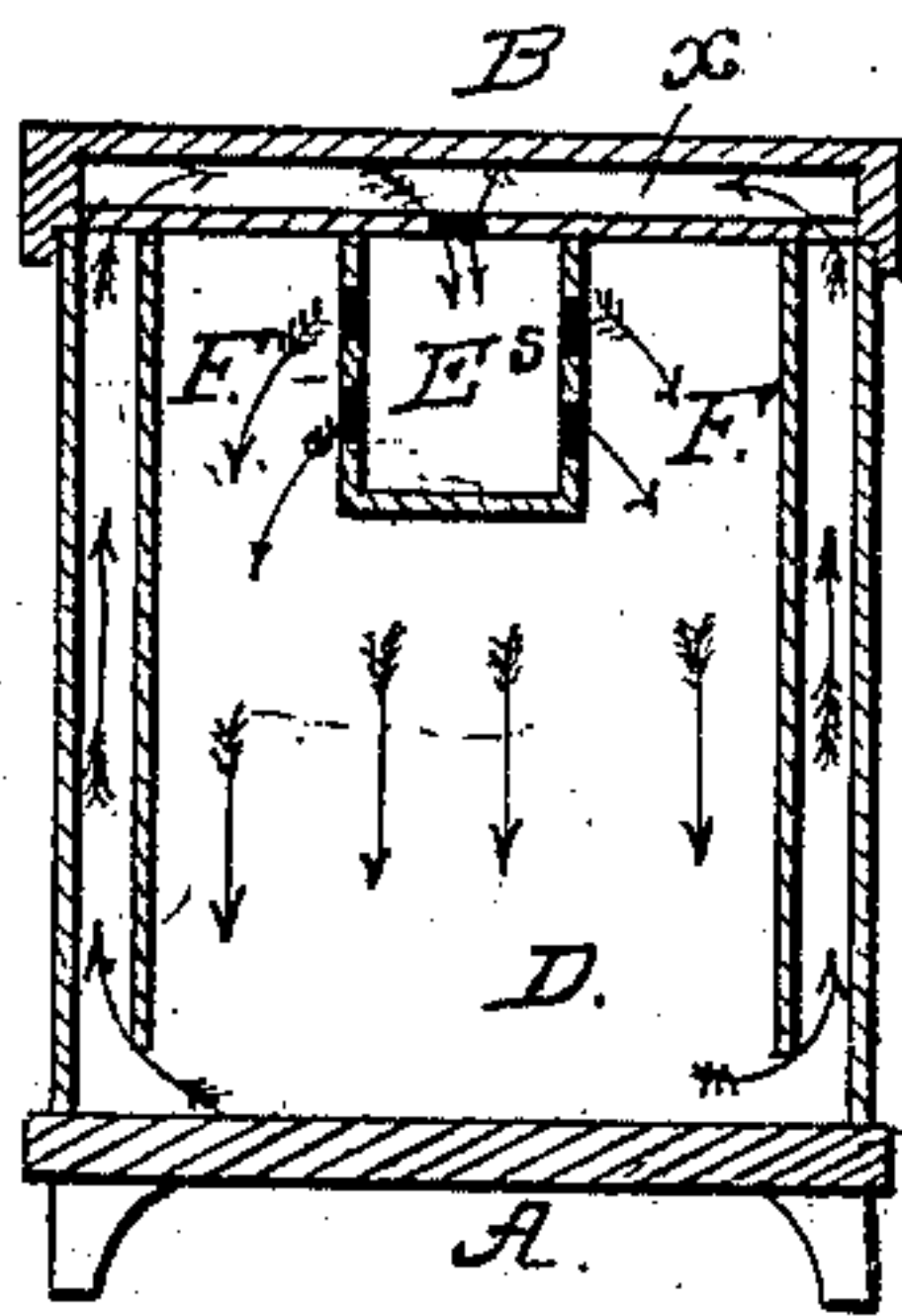


Fig. 2.

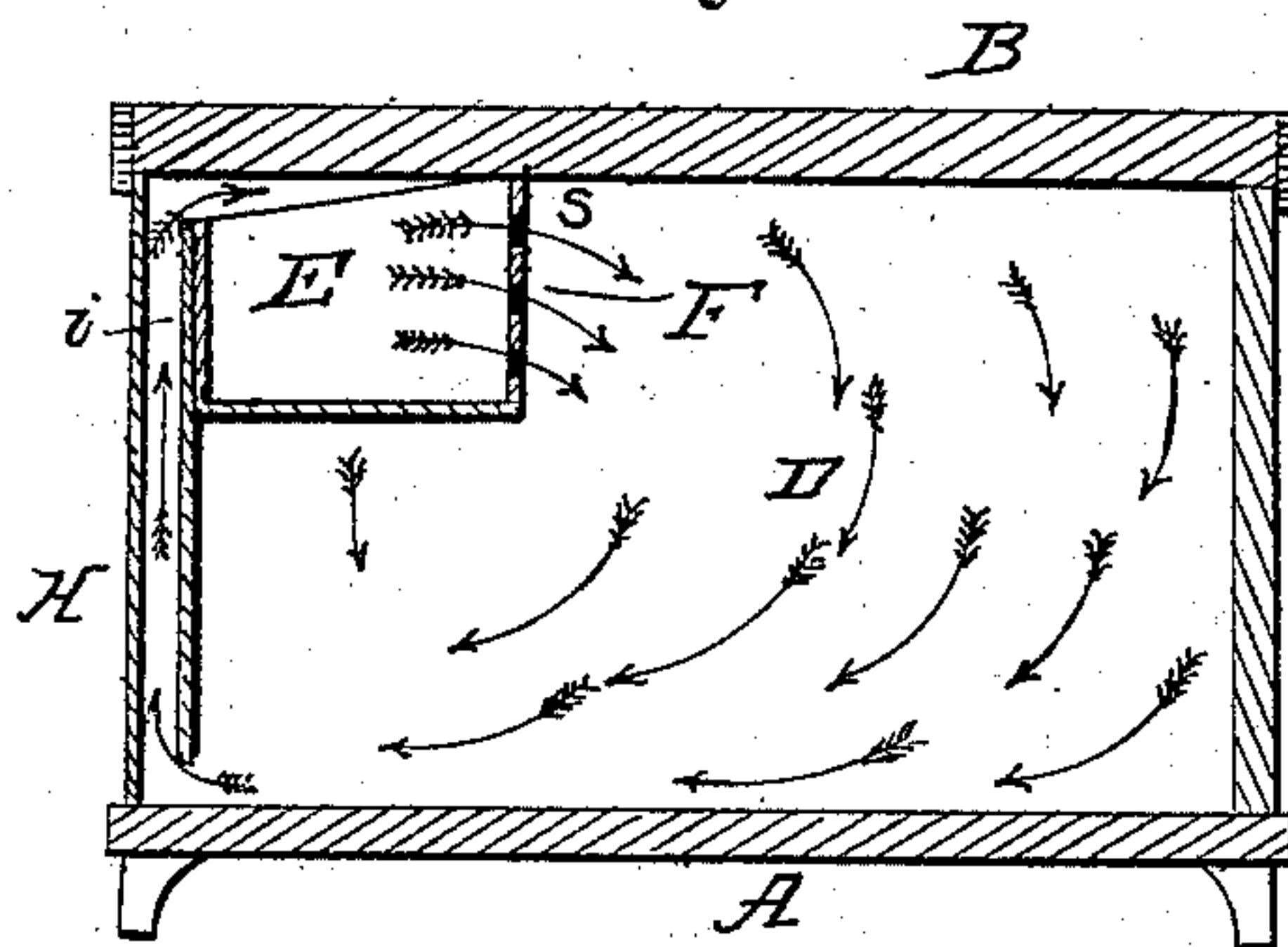


Fig. 5.

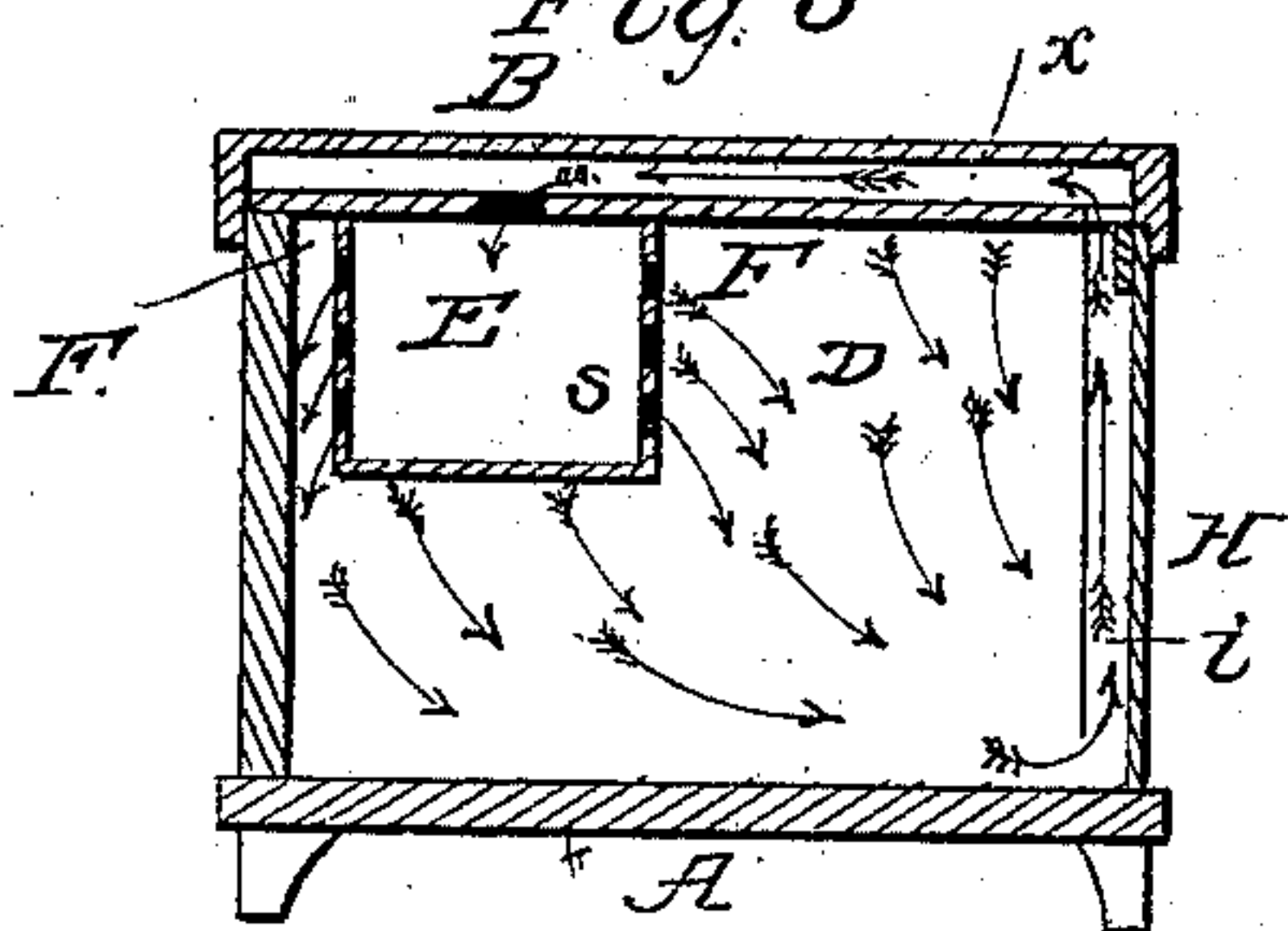


Fig. 4.

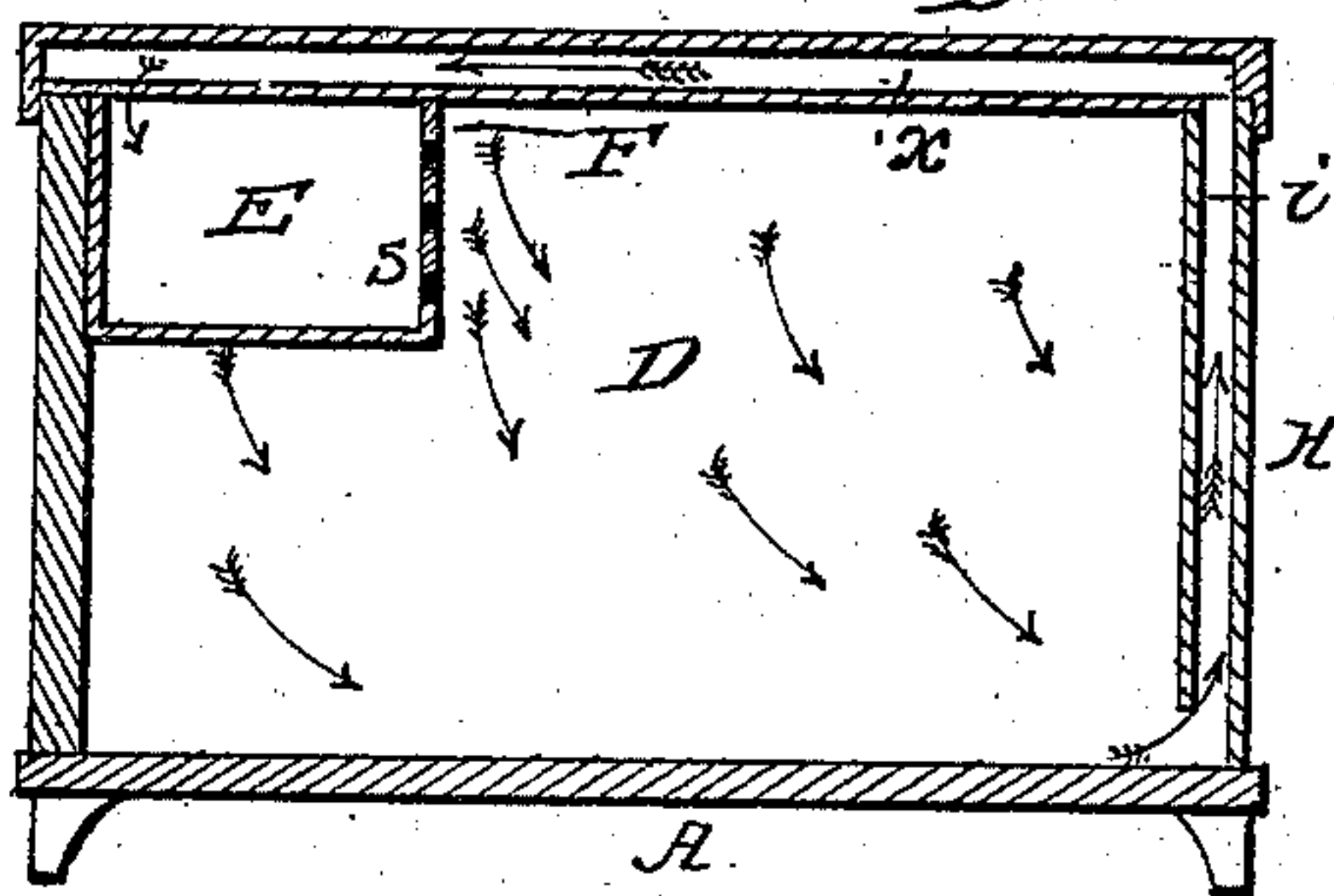
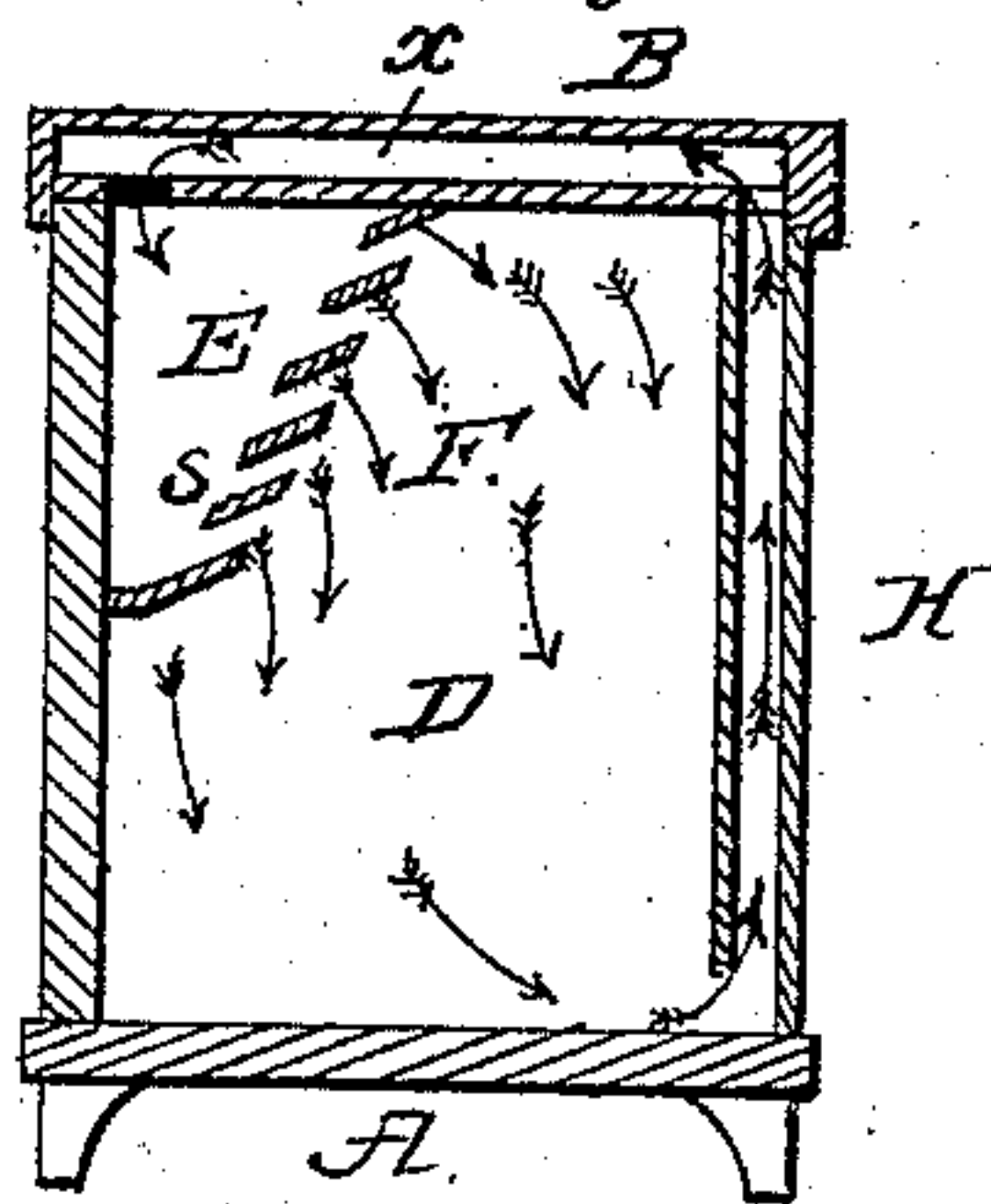


Fig. 3.



witnesses
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UNITED STATES PATENT OFFICE.

CHARLES G. PAGE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO
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IMPROVED REFRIGERATOR.

Specification forming part of Letters Patent No. 31,901, dated April 2, 1861.

To all whom it may concern:

Be it known that I, CHARLES GRAFTON PAGE, of Washington, in the county of Washington and District of Columbia, have invented an Improvement in Refrigerators; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings, of which—

Figures 1, 2, 3, 4, and 5 represent in section several varieties of refrigerators to which my improvement is applicable.

My invention consists in an improved mode of producing a circulation of the air of refrigerators, described and represented as follows: Whenever ice is placed in a box, chest, or apartment at an elevation above its floor or bottom, the air in contact with the ice becomes condensed and by its weight descends and displaces any warmer air below it, causing it to rise, and this in its turn, becoming cold and heavy by contact with the ice, descends, and thus a movement or circulation is kept up as long as there is any difference of temperature in the air throughout the box, it being understood that the ice does not occupy the entire area of a horizontal section of the box, chest, or apartment, for in this latter case the air above the ice would be at rest and stagnate. If the ice is placed on a shelf at one side of the box and above its floor, the air would be in motion over the surface of the ice; but there would be considerable stagnation of air under the shelf and at parts of the box remote from the ice, and the principal movement or circulation of the air would be in the immediate vicinity of the ice. It is important, therefore, that the whole, or as nearly as practicable the whole, of the contained air should be compelled to circulate to prevent stagnation, and also that the air should all be compelled to pass over the surface of the ice, so as to condense the moisture of the air and purify it of odors and mold. This is attained to an excellent purpose in the refrigerator patented by D. W. C. Sanford November 13, 1855, in which apparently the highest degree of refrigeration, desiccation, and purification of the air is effected by causing all

the air to pass down through the open bottom of the ice-box directly upon the articles to be refrigerated. The use, however, of the open-bottom ice-box is attended with some extra expense of construction, and it is one of the objects of my invention to obtain a complete circulation and passage of the air over the surface of the ice without an open-bottom ice-box, and this is accomplished as herein to be described. The above refrigerator of Sanford also involves a defect, inasmuch as its construction is not conveniently adapted to the chest or box form of refrigerator, for the middle partition of that refrigerator would be in the way of free access to articles from the top of the refrigerator. This might be accomplished by making that partition or a part of it to slide up and down or a part of it made to open and close; but this would cause an extra expense.

My improvement is alike applicable to the chest and cabinet form of refrigerator, and is also applicable to quite a variety of forms.

The improvement is described as follows:

A is the refrigerator-box; B, the lid, cover, or top.

D is the refrigerating-chamber, and E is the ice-box. This box is perforated at the side F, the perforations being either holes in the sides or spaces between slats s, these slats being so formed as to prevent the drip of water into the chamber D. All the sides except one of the refrigerating-chest are made after the usual manner, either with a thick wall or a double wall filled in with non-conducting material. One of the sides H is made much thinner than the others, and this side constitutes the outer wall of the circulating-flue i. The object of this thin wall is to produce an upward current in the flue by the higher temperature of the air in the flue than that in the chamber D, by virtue of its greater proximity to the warm atmosphere without, and thus it is evident that the descent of the cold air from the ice-box will press the air through the flue and force it to pass over the ice, where it becomes cooled, dried, and purified, and descends again, maintaining a constant circulation. Although the outer wall H is thin and very permeable to heat from without, yet the flue acts as a non-conducting wall to the chamber D, preventing articles therein from

being affected by the heat which penetrates the thin outer wall. The most simple construction for the exhibition of this principle is in the chest-form, Fig. 2. Figs. 1 and 3 are designed for cabinet or closet forms. In these, as also in Figs. 4 and 5, is seen a peculiar mode of conducting the warm air back to the ice-box, a part of the return-flue being in the top, and in case of the chest this flue x is in the cover or lid. The arrows in the several figures indicate the currents of air.

The wall a may be made of a good conductor, such as metal, or, if wood, so thin as compared with the other walls as to determine the upward current always within the flue.

I do not claim a circulating-flue for the upward current of air in a refrigerator, as that is found in the patent of D. W. C. Sanford, aforesaid; but

I claim—

1. The circulating-flue i , constructed substantially as above described, in combination with an ice-box open on its sides, as herein set forth.

2. In combination with said flue i , the flue x in the cover of the chest, as set forth.

CHAS. G. PAGE.

Witnesses:

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