

No. 672,922.

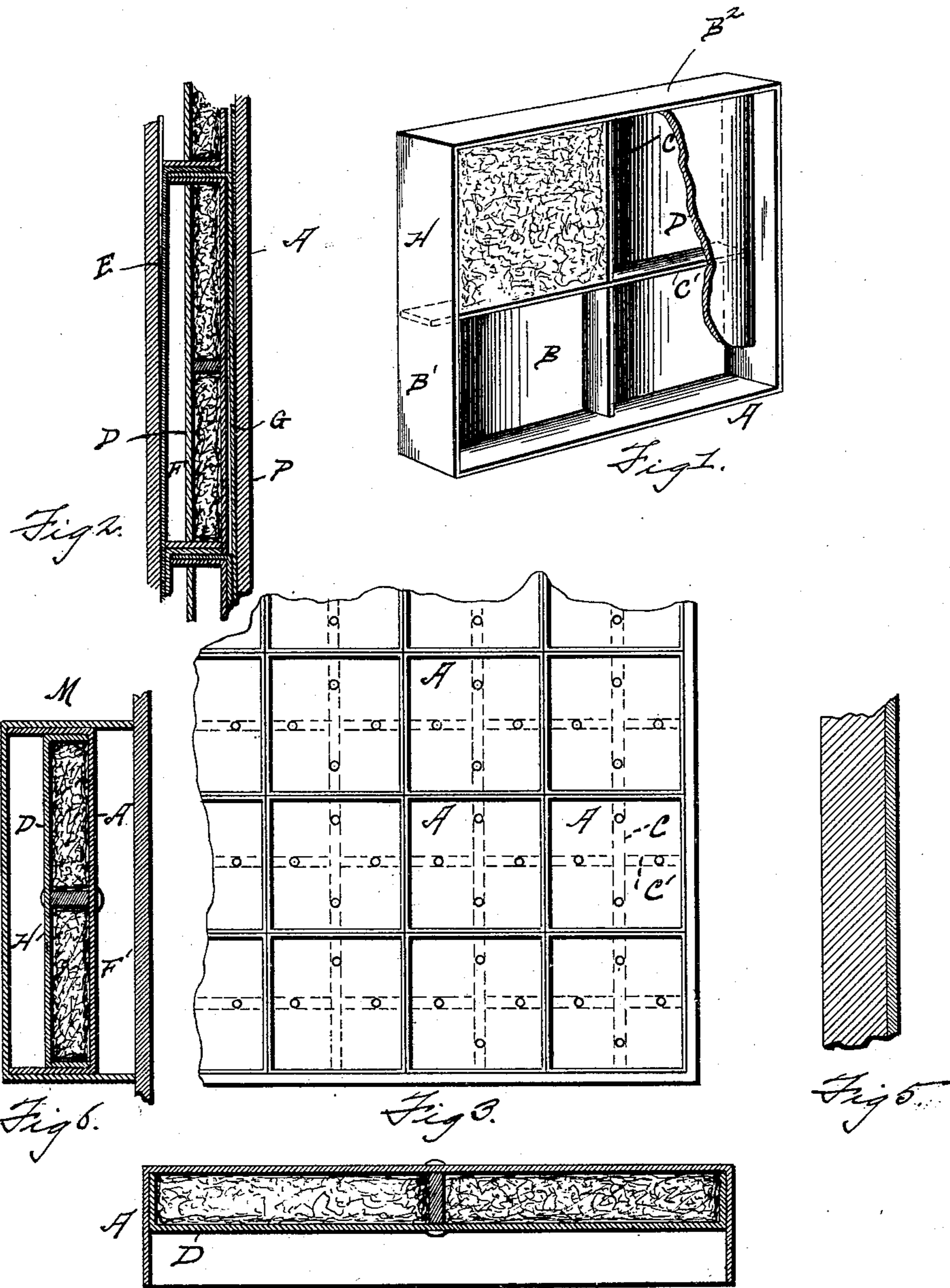
Patented Apr. 30, 1901.

B. A. STEVENS.

ICE BOX.

(Application filed Aug. 17, 1900.)

(No Model.)



WITNESSES

Nat Massey.
May E. Kott.

Fig 4.

INVENTOR

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UNITED STATES PATENT OFFICE.

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ICE-BOX.

SPECIFICATION forming part of Letters Patent No. 672,922, dated April 30, 1901.

Application filed August 17, 1900. Serial No. 27,137. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. STEVENS, a citizen of the United States, residing at Toledo, county of Lucas, State of Ohio, have
5 invented a certain new and useful Improvement in Ice-Boxes; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make
10 and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improved means for securing non-conducting heat qualities for
15 the walls of refrigerators and other analogous devices; and it consists in the combination and construction of means for that purpose, as hereinafter set forth and claimed.

In the drawings, Figure 1 is a perspective
20 view of a heat-insulating block. Fig. 2 is a vertical sectional view of the same, showing its use in conjunction with a partition. Fig. 3 is a vertical elevation of a number of said blocks as arranged in connection with a par-
25 titution, as hereinafter specified. Fig. 4 is a section of a heat-insulating block. Fig. 5 represents a greatly-enlarged section of non-radiating surfaced paper. Fig. 6 shows in
30 section a modified form of the heat-insulating block.

Similar letters refer to similar parts.

In the drawings, A represents a box or tray, preferably made of stiff paper such as is usually used for insulating purposes, hav-
35 ing a bottom B with side walls B' B². It is preferably made in several sizes—say eight by eight, eight by ten, and eight by twelve.

D is a second box of the same material as the box A, having only about one-half its
40 height or depth. The box D is of such a size that it will just fit into the box A, the open ends of the two boxes being turned in opposite directions, as shown in Fig. 4. Cross-partitions C C' divide the box D into four
45 equal parts, and these partitions extend the depth of the box and from side to side. The four compartments formed by the partitions C C' are loosely filled with mineral wool H. Then the two boxes are put together, as shown
50 in Fig. 4, and secured by tacks passing through the closed ends of the boxes into the cross-

pieces C C'. All of the walls, therefore, are of paper, and the cross-partitions are preferably of wood, it being well known that both paper and wood are non-conductors of heat. The
55 division of the air-space into small volumes prevents the circulation of air, and therefore the convection of heat thereby. The particular article in question, therefore, is made up of two insulated trays or boxes of stiff paper,
60 each having a bottom and one about half the depth of the first, having two cross-partitions of about the depth of the box and contiguous to the bottom and forming the box into four
65 substantially equal receptacles, into which is packed mineral wool, said boxes being placed together one within the other, with their open ends pointing in opposite directions, as shown in Fig. 4. When so constituted they form a
70 unit of sectional insulation.

In connection with the above-described sectional insulation and in addition thereto I use sheets of paper to line each finished surface.

In practice the inner surface of the wall of
75 the refrigerator is covered with paper E, Fig. 2. Said paper is then covered with sections of the insulation, each section having its open end laid against the paper, as shown in Fig. 2. The sectional insulation is then covered
80 with a layer of paper G, as shown in Fig. 2, and the whole is held in place and finished by constructing the inner partition P, Fig. 2. The lining-paper is in sheets, which may be held in place by turning it in at its upper
85 edge and placing the inturned portion between two rows of insulating-sections, as shown in Fig. 2.

The heat in passing through to the interior of the refrigerator is first conducted through
90 the outer refrigerator-wall, then conveyed by the slight currents of air across the air-space F, and radiated from the inner surface of the first paper lining to the bottom of the box D. The convection in the above-described con-
95 struction is greatly diminished by subdividing the space.

If a large body of mineral wool is used, its weight will cause it to settle, leaving a large space above it in which convection-currents
100 will be set up and the compacted wool will itself transmit heat with relatively great fa-

cility. By subdividing the space the mineral wool is divided into small bundles which do not pack together.

The separate sections of the above insulation are easily, quickly, and cheaply made, and an insulating-wall may be built out of them very quickly. The sections are preferably made of different sizes, as above specified, in order that any surface may be completely covered by them.

Fig. 6 shows a section of insulation in which there are two air-chambers F' and H'. This is formed simply by employing a second box M of greater depth than the box A. The box D is placed within the box A, as above described, and the box A within the box M, its otherwise open end inward. The box M is then built or placed against the refrigerator-wall, as previously described relative to the box A.

What I claim is—

1. The combination of a tray or box, a cover therefor placed lower than the raised edge of the box, and heat-insulating material in the space between said cover and the bottom of the box, substantially as and for the purpose described.

2. The combination of a tray or box, depressed partitions dividing the bottom thereof into smaller spaces, heat-insulating material located in the spaces, a cover therefor placed lower than the raised edge of the box and holding the heat-insulating material in place, substantially as described.

3. An insulating-section consisting of a box the interior space of which is divided into compartments by partitions, said compartments being filled with insulating material, and a second box of greater depth than the first having one end open, the first-named box being secured within, and adjacent to the bottom of the second box, substantially as described.

4. An insulating-section consisting of a box the interior space of which is divided into compartments by partitions, a second box of greater depth than the first having one end open, the first-named box being secured within and adjacent to the bottom of the second box by tacks passing through the bottoms of said boxes into said partitions, substantially as described.

5. The combination of a tray or box, a cover therefor placed lower than the raised edge of the box, and heat-insulating material in the space between said cover and the bottom of the box, the outer surface of said cover being composed of non-radiating material, substantially as and for the purpose described.

6. An insulating-section consisting of a box having one end closed and one end open, a second similar box of less depth than the first placed within the first-named box with its open end inward, and a third similar box of less depth than the second placed within the second box with its open end inward, substantially as described.

7. A heat-insulating partition, built up of side walls, a series of rectangular boxes fitted therein and superimposed one above the other, said boxes being constructed as described, whereby a series of rectangular spaces is formed, said rectangular spaces being filled with heat-insulating material, and adjacent to said rectangular spaces, a second series of rectangular spaces, each one of the rectangular spaces of the last-mentioned series being wholly included within one of said rectangular boxes, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

BENJAMIN A. STEVENS.

Witnesses:

P. G. JONES,
GEO. E. BIBB.