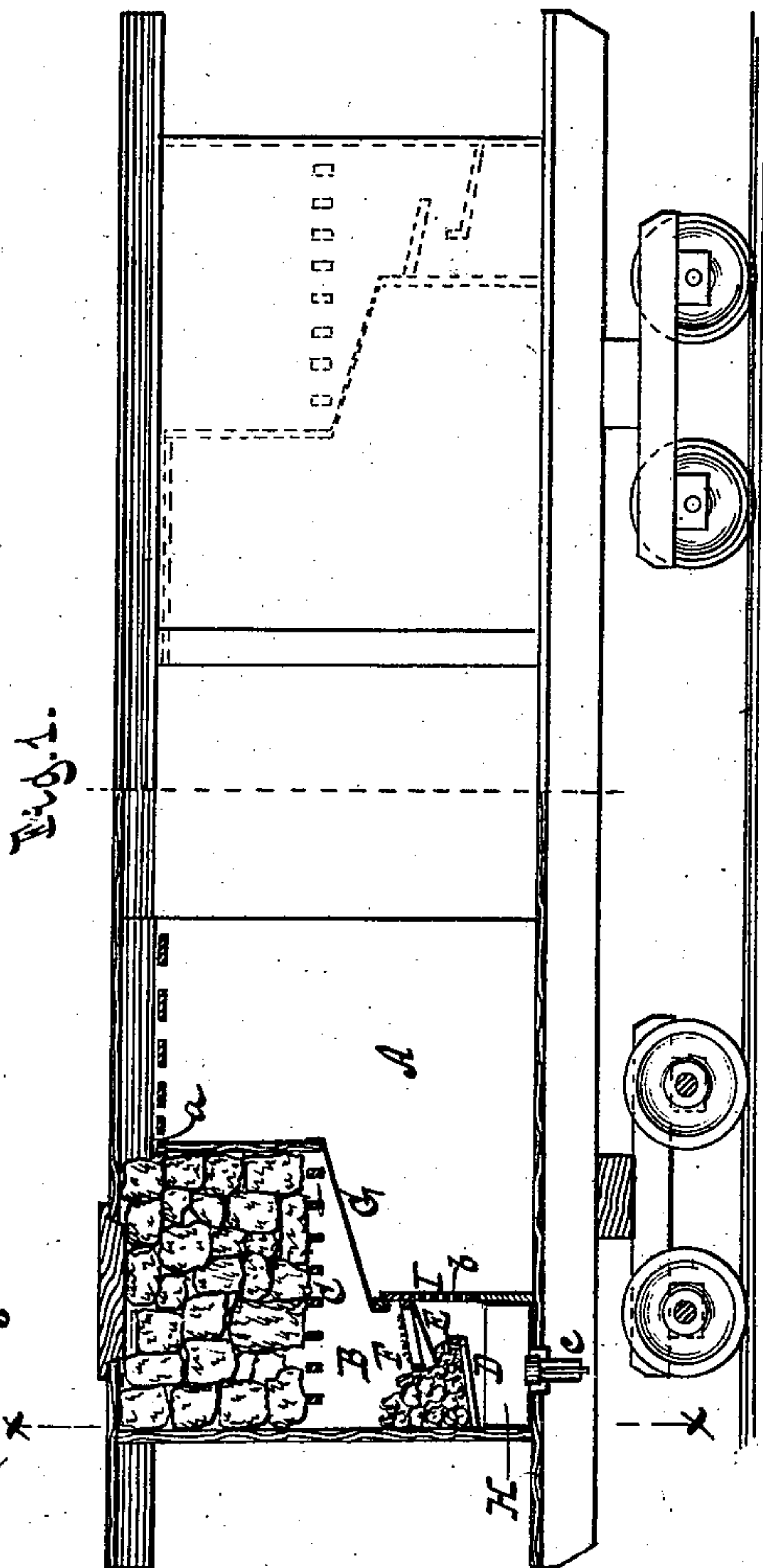
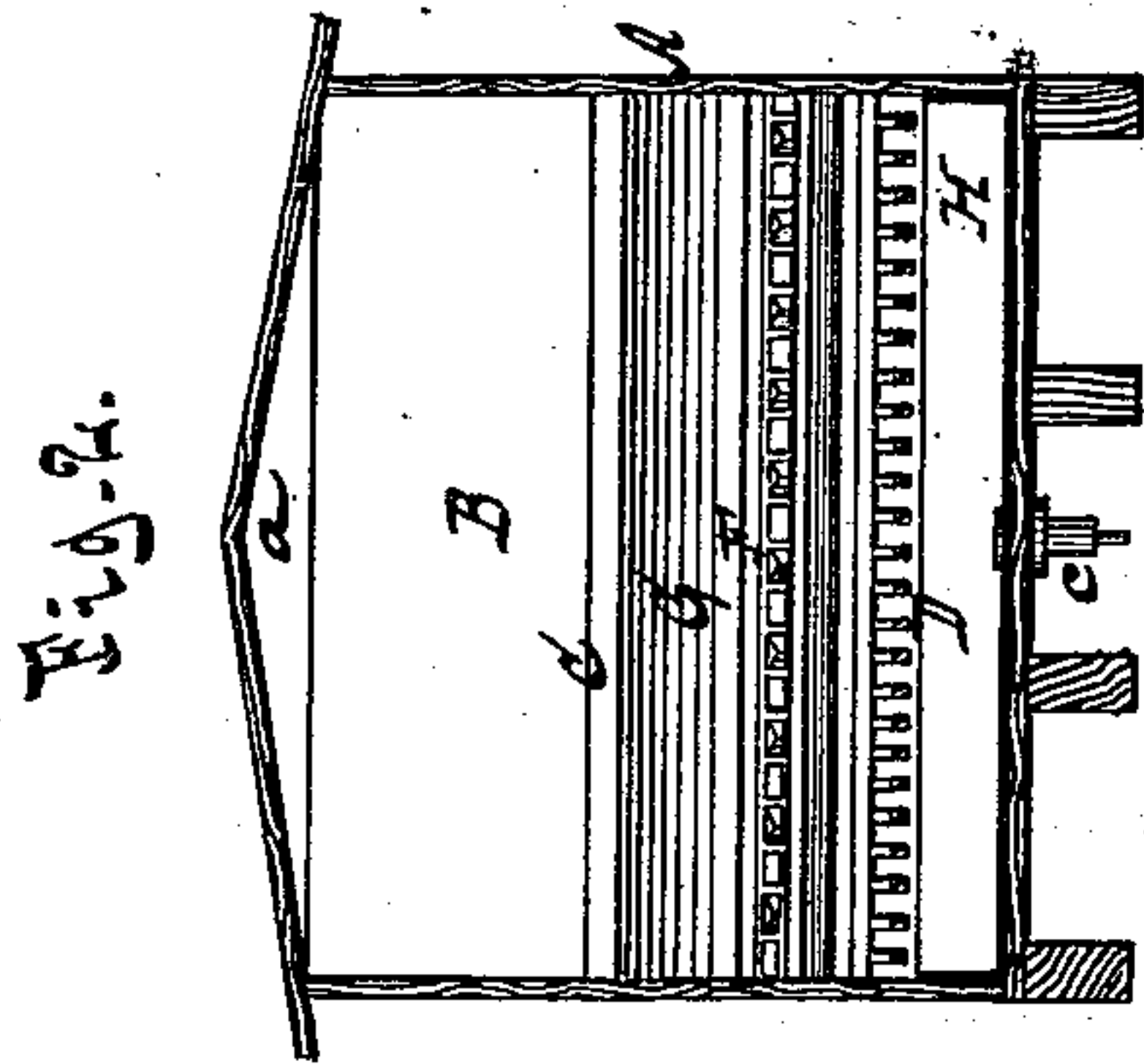


(No Model.)

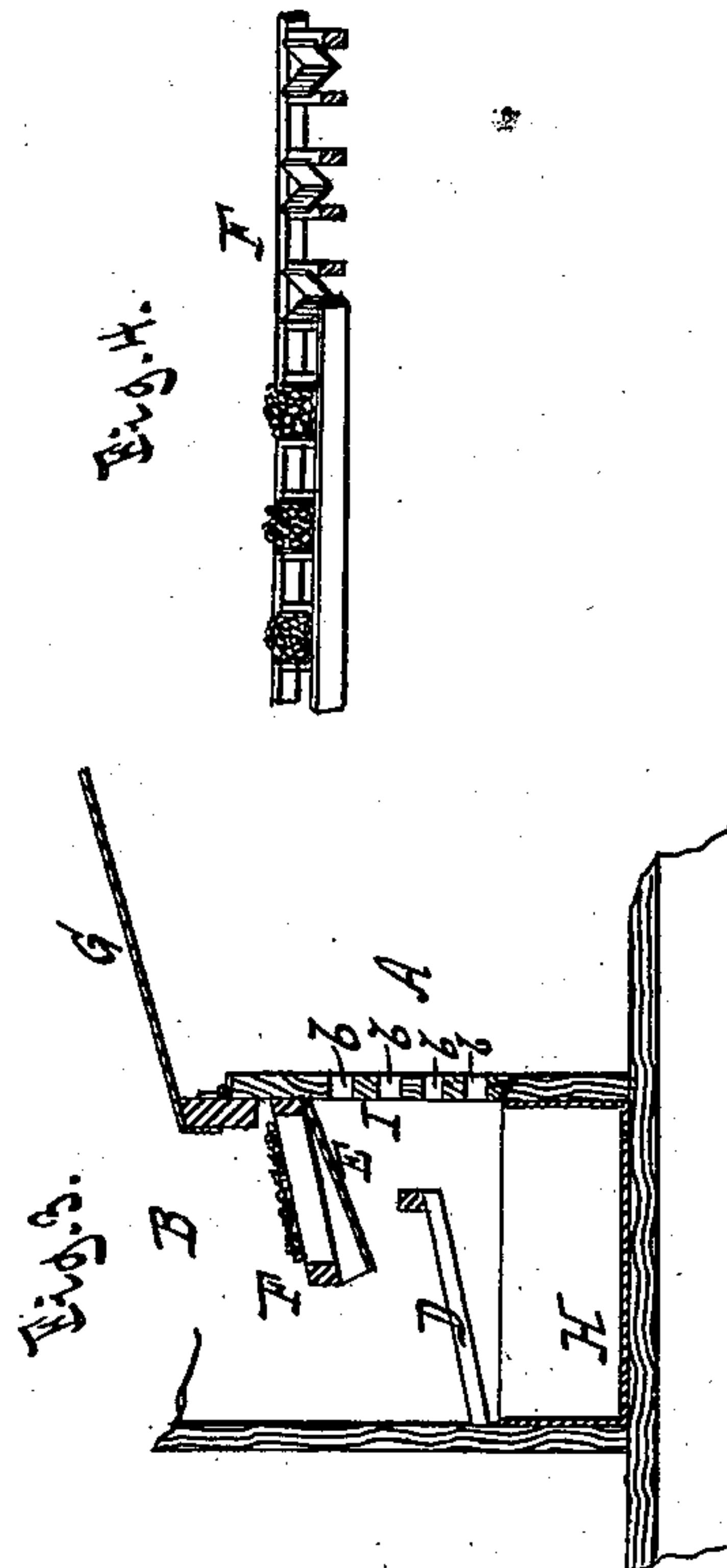
J. H. WICKES.
Refrigerator.

No. 230,376.

Patented July 20, 1880.



Witnesses
Otto Aufeland
Hm Miller *



Inventor
James H. Wickes
by
Van Santwood & Smith
his attorneys.

UNITED STATES PATENT OFFICE.

JAMES H. WICKES, OF NEW YORK, N. Y.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 230,376, dated July 20, 1880.

Application filed April 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. WICKES, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Refrigerators, of which the following is a specification.

This invention relates to the construction of the ice-chambers of refrigerators, and particularly that class of ice-chambers having openings in the side facing the provision-chamber of the apparatus, to admit air at the top and permit such air to discharge at the bottom thereof.

It consists in constructing the ice-chamber with a grating in its upper part for supporting blocks of ice and a grating in its lower part for the reception of the fine or waste ice that may drop through the interstices of the upper grating, so arranged that the current of air entering and leaving the ice-chamber passes through both gratings or the ice resting thereon. With the upper and lower ice-gratings is combined an inclined grating for holding salt, which is intermediate of the ice-gratings and terminates within one side of the ice-chamber, so that, while this salt-grating is no impediment to the reception of the waste ice on the lower ice-grating, the drip water from the upper ice-grating falls onto the salt-grating, and thence, impregnated with salt, onto the lower grating or the waste ice resting thereon, whereby the effect of such ice is materially increased. The lower ice-grating terminates within the side of the ice-chamber having the openings, and the current of air passing through the ice-chamber is thrown upon the lower grating by a deflecting-plate arranged above the point where the air discharges from the chamber, such deflecting-plate being next below the salt-grating, so that it serves also to conduct the salt-water onto the lower grating. The side of the ice-chamber having the openings is partly inclined inward, thus contracting the ice-chamber on its lower part for the purpose of increasing the cooling-surface of the ice-chamber, and also for concentrating the current of air passing through the chamber at the lower grating.

This invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a refrigerator-car, partly in

side view and partly in section, embodying the invention. Fig. 2 is a cross-section thereof on the line *xx*, Fig. 1. Fig. 3 is a vertical section of the lower part of the ice-chamber on a larger scale than in the previous figures. Fig. 4 shows the salt-grating, partly in front view and partly in section.

Similar letters indicate corresponding parts.

The letter A designates the provision-chamber, in this example constituting the body of a refrigerator-car; B, the ice-chamber; C D, the upper and lower ice-gratings; E, the deflecting-plate; F, the salt-grating, and G the inclined portion of the ice-chamber.

The ice-chamber B is situated at one end of the provision-chamber A, and it has openings *a b* in its inner side, at or near the top and bottom thereof respectively, whereby air is admitted to the ice-chamber from the upper part of the provision-chamber, and after passing through the ice-chamber discharges therefrom into the lower part of the provision-chamber. The lower or discharge openings, *b*, are in a door, I, whereby access is had to the lower part of the ice-chamber.

The bars of the upper grating, C, are so arranged that such grating is adapted to support blocks of ice of ordinary size, while the bars of the lower grating, D, are comparatively near together—namely, so that this grating will retain the fine ice that may fall through the interstices of the upper grating.

The bars of the grating F are made in the shape of troughs, as clearly shown in Fig. 4, so that each of such bars is a receptacle for salt; but other arrangements of the bars may be devised to adapt the grating for holding that substance.

The position of the salt-grating F is intermediate of the two ice-gratings C D, and it terminates within the outer side of the ice-chamber B, while it is inclined toward its free edge, so that the fine ice falling on the salt-grating from the upper ice-grating rolls down and over the free edge thereof onto the lower ice-grating. The greater part of the water dripping from the upper ice-grating, C, is received on the salt-grating F, and thence drips onto the lower ice-grating, D. Hence if the grating F is supplied with salt an increased cooling effect is had from the fine ice resting on the lower grating.

The upper ice-grating, C, extends over the whole area of the ice-chamber B, and the lower ice-grating, D, extends the entire length, but terminates within the inner side of the chamber. The deflecting-plate E projects inward from the inner side of the ice-chamber B, and is situated above the openings b, through which the air discharges from the ice-chamber, the lower grating, D, being opposite to such opening. By this arrangement the current of air in the ice-chamber, after passing through the upper ice-grating, C, is deflected and thrown upon the lower ice-grating, D, so as to pass through this grating before it discharges from the ice-chamber.

The deflecting-plate E is next below the salt-grating F, and hence it is a medium for conducting the salt-water dripping from such grating to the lower ice-grating. The inclined portion G of the ice-chamber is in the inner side thereof, and it is preferably made of sheet metal, the bulk of the apparatus being usually made of wood.

One result of the inclination G is to increase the cooling-surface of the ice-chamber B, and another to contract the ice-chamber on its lower part, where is situated the lower ice-grating, D. The effect of this contraction is to concentrate the current of air passing through the ice-chamber in the neighborhood of the lower grating, D, so that the quantity of fine ice on the lower grating need be comparatively small to insure the passage of the air through an ice mass at that point.

On the bottom of the ice-chamber B is a waste-water pan, H, having an outlet-pipe, c, provided with a suitable trap.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the ice-chamber B, of a grating in the upper part of such chamber for supporting blocks of ice and a grating in the lower part of such chamber for the reception of the fine or waste ice that may drop through the interstices of the upper grating, substantially as shown and described.

2. The combination, with the ice-chamber B, of the upper and lower ice-gratings, C D, and an inclined grating for holding salt, which is intermediate of the ice-gratings and terminates within one side of the ice-chamber, substantially as and for the purpose described.

3. The combination, with the ice-chamber B, of the upper grating, C, the lower ice-grating, D, terminating within one side of the ice-chamber, and a deflecting-plate for throwing the current of air passing through the ice-chamber upon the lower grating, substantially as shown and described.

4. The combination, with the ice-chamber B, of the upper and lower ice-gratings, C D, the salt-grating F, and the deflecting-plate E, substantially as and for the purpose described.

5. The combination of the upper and lower ice-gratings, C D, with an ice-chamber one side of which is partly inclined, substantially as shown and described, for the object set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JAMES H. WICKES. [L. S.]

Witnesses:

J. VAN SANTVOORD,
CHAS. WAHLERS.