

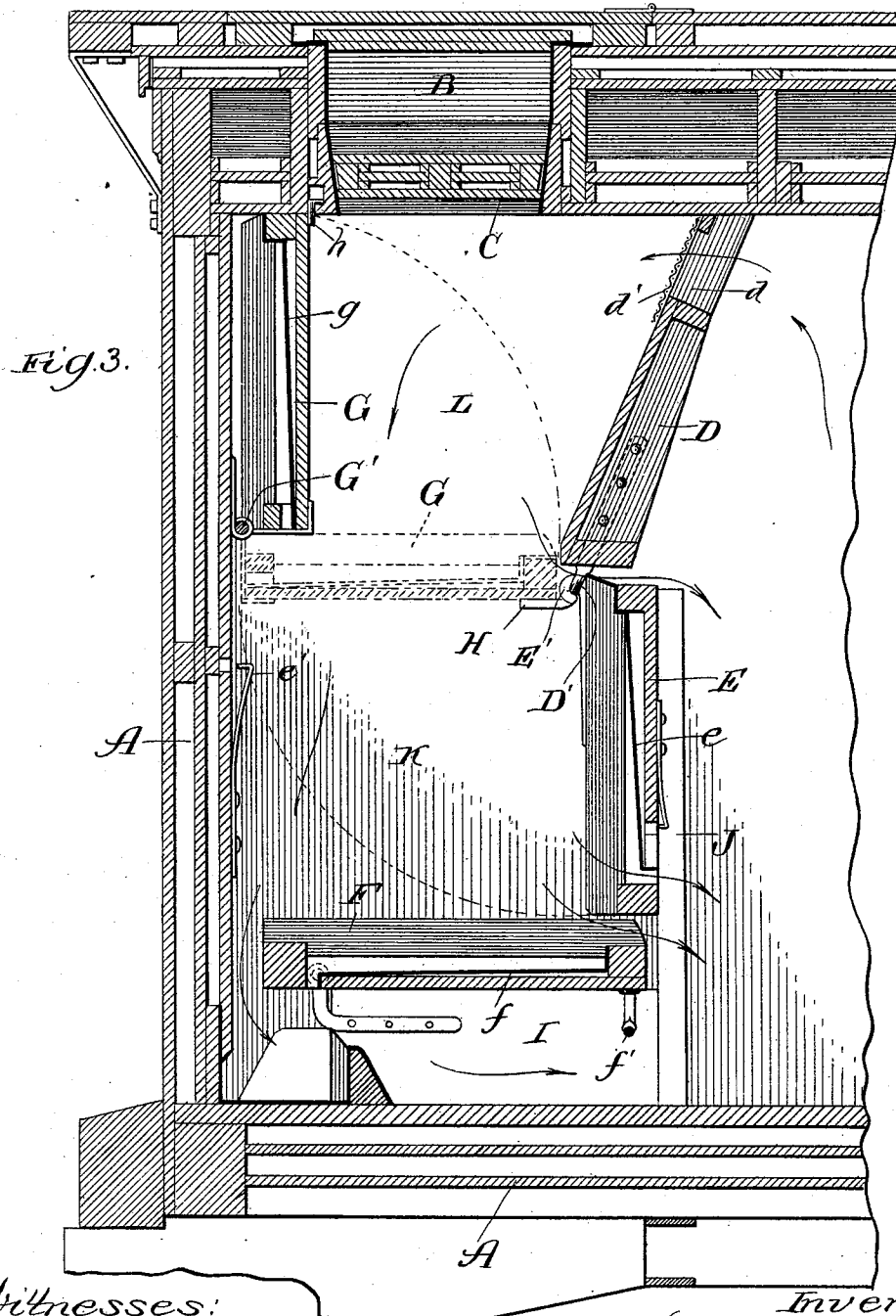
(No Model.)

2 Sheets—Sheet 2.

G. B. ROBBINS & T. B. KIRBY.
REFRIGERATOR CAR.

No. 537,308.

Patented Apr. 9, 1895.



Witnesses:
E. C. Gaylord,
E. R. Shipley.

Inventors:
George B. Robbins,
Thomas B. Kirby,
By Ranning & Ranning,
Attys.

UNITED STATES PATENT OFFICE.

GEORGE B. ROBBINS, OF HINSDALE, AND THOMAS B. KIRBY, OF CHICAGO,
ILLINOIS.

REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 537,308, dated April 9, 1895.

Application filed August 7, 1893. Serial No. 482,608. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. ROBBINS, of Hinsdale, Du Page county, and THOMAS B. KIRBY, of Chicago, Illinois, have invented certain new and useful Improvements in Refrigerator-Cars, of which the following is a specification.

In the use of these cars the best and most satisfactory size to be given to the ice box varies with the seasons and with the freight which the car may be used to transport. For instance, in hotter weather, and with certain kinds of perishable freight, a larger ice space will obviously be required than in cooler weather and with a less perishable class of freight. In some refrigerator cars the ice box takes up practically the entire end of the car from floor to ceiling. This is objectionable for two reasons, first, because it greatly diminishes the storage capacity of the car, and, second, because the ice box thereby formed is larger than is required in all circumstances.

The object of our invention, therefore, is to so construct the car that while under normal conditions it is provided with an elevated ice box of the ordinary size in one or both ends of the car, thereby permitting free space for storage beneath the ice box, it may nevertheless be so operated as to turn practically the entire end of the car into an ice box. In other words, we provide means whereby the size of the ice box may be varied at the will of those operating the car. The manner of accomplishing this will be more apparent from the detailed description hereinafter following.

Our invention therefore consists in the features, details of construction and combinations hereinafter described and claimed.

In the drawings, Figure 1 is a vertical, central, longitudinal section of one end of a car provided with our improvements, showing such improvements in their normal position; Fig. 2, a detail, showing a drainage trough, and Fig. 3, a section similar to that shown in Fig. 1, but with the parts in another position.

The car A is made, except as hereinafter described, in any of the well known forms, and therefore requires no particular descrip-

tion. It is provided with an opening B, in the roof, for the admission of ice, adapted to be closed by a plug C.

We may state that the form of ice box in connection with which our improvements are adapted to be used, is not important. By that we mean that the various ports and passages for the admission and escape of air may be constructed as desired, being wholly independent of the particular features for which we are seeking a patent.

D is the front of the ice box, which, in the form shown, is placed at an angle, made solid, and provided with an opening, d , for the entrance of air, which opening is shown as covered with a grating d' . There is also shown another opening, D' , at the lower end of the front of the box for the admission or escape of air, and when in the position shown in Fig. 1, an opening D^2 , down which the air passes and down which the water from the melting ice flows to the usual discharge orifices.

E is the bottom of the ice tank, when in the position shown in Fig. 1. This we term the "main" bottom. It may be made in any suitable form, but preferably has an inclined pan, e , to discharge the water. Usually this bottom is made rigid, but in our invention it is connected to the front D of the ice box, or to any other suitable point or points, by means of one or more hinges E' , allowing the bottom to be raised into a horizontal position, or lowered into a vertical position, as shown in Fig. 3, in which position it forms a portion of the front of the then enlarged ice box. In Fig. 1, the bottom E, as shown, is supported upon the secondary or sub-bottom F, which is also supported upon hinges, so as to rotate in a vertical plane, or be turned up and down which is constructed in substantially the same manner as the bottom E, and which in Fig. 3 is shown in a horizontal position, into which it may be brought if desired. A spring catch, e' , is provided for the purpose of holding the main bottom E in position, while the sub-bottom is being swung up from its horizontal to its vertical position. The bottom F is preferably provided with a

truss rod, *f'*, for the purpose of strengthening it. It has an inclined pan, *f*, corresponding to the pan *e* of the bottom *E*.

At *G* is shown what may be termed an "auxiliary" top, constructed substantially like the others, with an inclined pan *g* supported upon hinges *G'*, and adapted to be raised into the vertical position shown in solid lines in the drawings and forms a swinging upper back portion of the ice chest, or dropped down, if desired, into the position indicated in dotted lines in Fig. 3, in which position it is supported by hooks *H* and forms the top of an ice chest diminished in size. Catches, *h*, may be provided to hold this auxiliary top in a vertical position.

We have described one form in which these various bottoms or partitions may be made, but we do not consider it essential that this particular form should be adhered to, so long as the substantial purposes of our invention are accomplished, and therefore the material and precise form of these partitions may be changed as desired.

When the parts are in the position shown in Fig. 1, the bottom *E*, being movable, may not fit with requisite tightness against the sides of the car, and therefore water may escape between such sides and bottom and drop down the side walls. To catch this water and deliver it to the discharge outlet, we provide inclined troughs, *I*, indicated by dotted lines in Fig. 1, and shown more particularly in detail in Fig. 2.

The device having been constructed as above described, operates in the following manner: Under what may be termed normal conditions, the parts will be in the position shown in Fig. 1, with the main bottom in a horizontal position and the sub-bottom and auxiliary bottom in vertical position. If now, it be desired for any reason to increase the size of the ice chest, the sub-bottom *F* may be swung upon its hinges or pivots into a horizontal position, as shown in Fig. 3. The main bottom may then be swung down into a vertical position, as also shown in Fig. 3, being prevented from moving too far by means of cleats or strips, *J*, attached to the walls of the car. In this way, an ice chest is formed which occupies substantially the entire end of the car and affords as much space for ice as can ever be required. When it is desired to again diminish the size of the ice box, this can be done by restoring the main and sub-bottoms to their normal positions, provided the ice chest is substantially empty. If, however, the ice chest is partially full of ice, it would be difficult, if not impossible, to restore these bottoms to their original positions, and it is for this reason that we have provided the auxiliary bottom *G*. This bottom may be lowered from its vertical to its horizontal position, as indicated in dotted lines, forming an ice chest *K*, occupying a position beneath the ice chest *L*, and thereby

diminishing the size and changing the location of the ice box. We therefore have, in this car, the combination of three ice chests; first, the ice chest *L*; second, the ice chest *K*, and, third, the ice chest made up of the entire space *K*, *L*.

While we have described more or less precise forms, it is not our intention to limit ourselves thereto, but we contemplate all proper changes in forms, proportions and substantial equivalent members. For example, it is not essential that both a sub and auxiliary bottom should be found in the same car, since the auxiliary bottom *G* may be entirely omitted, and similar changes may be made without departing from the spirit of our invention.

We claim—

1. In refrigerator cars, an ice chest provided with a movable lower front section adapted to be moved into position to form the ice support of an ice chest diminished in size, substantially as described.
2. In refrigerator cars, an ice chest having a swinging lower front section adapted to fold upward and form the ice support of an ice chest diminished in size, and means for holding such swinging portion in position to form the diminished ice chest, substantially as described.
3. In refrigerator cars, an ice chest provided with a movable lower front section adapted to be moved into position to form the ice support of a diminished ice chest, and a movable bottom portion adapted to be moved into position and form a support for the bottom of the diminished ice chest, substantially as described.
4. In a refrigerator car, an ice chest having a swinging lower front section adapted to be folded into a horizontal position and form the ice support of an ice chest diminished in size, means for holding such section in its horizontal position, a swinging bottom portion normally occupying a horizontal plane and adapted to be swung into a vertical position, and means for holding it in its vertical position, substantially as described.
5. In refrigerator cars, an ice chest formed of several swinging sections capable of being moved into different positions to form an ice chest diminished in size, substantially as described.
6. In refrigerator cars, an ice chest having a movable lower front section, a movable bottom portion, and a swinging upper back portion, each of these several portions capable of being moved into different positions to form an ice chest diminished in size, substantially as described.

GEORGE B. ROBBINS.
THOMAS B. KIRBY.

Witnesses:

WALTER W. TABEMER,
FRANK E. WOLCOTT.