(No Model.)

O. VEZIN.

REFRIGERATOR CAR.

No. 482,703. Patented Sept. 13, 1892.

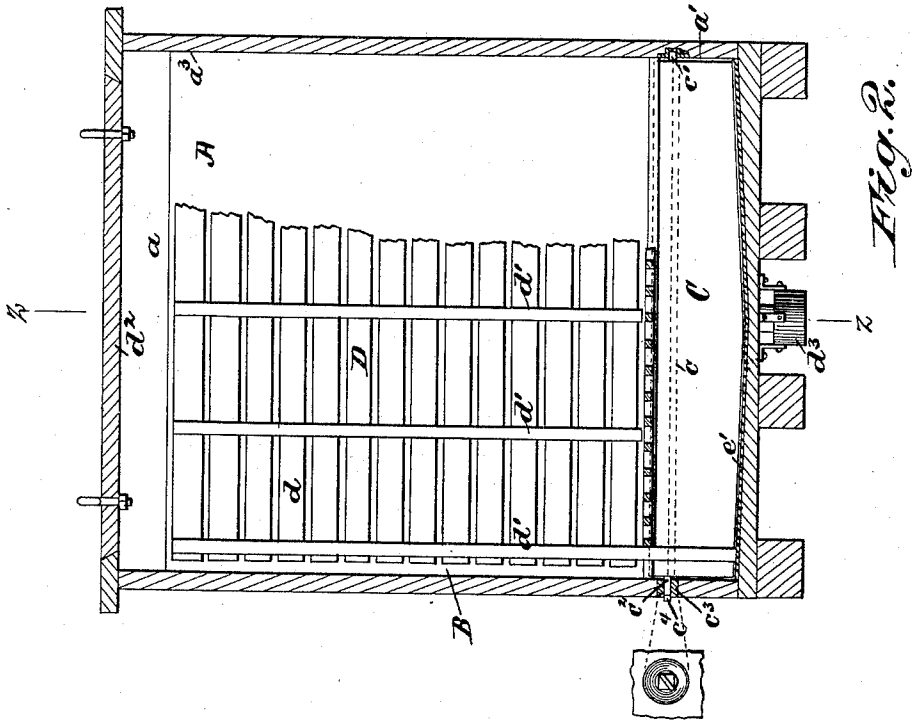

Fig. 2.

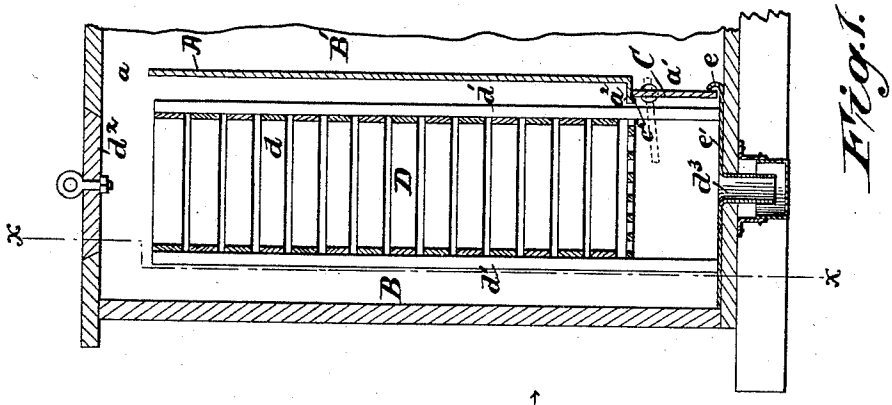

Fig. 1.

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UNITED STATES PATENT OFFICE.

OSCAR VEZIN, OF NEW YORK, N. Y.

REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 482,703, dated September 13, 1892.

Application filed September 21, 1891. Serial No. 406,308. (No model.)

To all whom it may concern:

Be it known that I, OSCAR VEZIN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Refrigerator-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to refrigerator-cars; and it consists in the combinations of devices hereinafter described, and as more particularly and at length recited in the claims.

Figure 1 is a longitudinal vertical section of a car containing my invention, taken on the line *z z*, Fig. 2; and Fig. 2 is a lateral vertical section of the same on the line *x x*, Fig. 1.

In constructing a refrigerator-car I constitute a refrigerant-chamber at an end of the car by means of a partition A, which at its side edges *a* is fitted tightly into the side walls of the car, and which thus extends laterally of the car, dividing the end chamber B from the main storage-space B′ of the car. I usually, as is customary in cars of this description, constitute a refrigerant-chamber B at each end of the car.

In Fig. 1 only one end of the car is shown; but it will be understood that a chamber, such as illustrated, may be arranged at each end of the car-space. The partition A is imperforate throughout its extent, and it terminates at its top edge somewhat below the line of the car-roof, so as to constitute between said top edge of the partition and the inner face of the car-roof a continuous and unimpeded open throat or aperture extending laterally of the car, as shown at *a*, and said partition, in like manner, terminates at its bottom edge somewhat above the car-floor, so as to constitute between said bottom edge of the partition and the car-floor a similar continuous and unimpeded open throat *a′*, extending laterally of the car. It is desirable, I find, that the throat *a′* should be somewhat larger than the throat *a*, and I have found that in cars of ordinary dimensions, as now in use, when the distance between the top of the partition A and the car-roof is about twelve inches and the distance between the bottom edge of the said partition and the car-floor is about eighteen inches good and satisfactory results are attained. The bottom throat *a′* is desirably provided with a valve C, substantially as shown.

Within the refrigerant-chamber B and located centrally thereof, with spaces between its walls and the inclosing walls of the said chamber, I provide an ice-holding crib or rack D, which is open at the top, as shown, and the side walls and bottom of which are perforated throughout their extent. This crib may be advantageously constructed of slats *d*, constituting the walls and bottom and secured to and supported above the car-floor by uprights *d′*, as shown, the slats being arranged with spaces or interstices between the adjoining ones successively, as illustrated. A gate or lid d^2 in the car-roof directly above the crib D will enable the crib to be filled from the exterior of the car with ice broken up into cakes or lumps. The meltage from the ice in the crib will escape therefrom through the perforated bottom thereof, and, falling to the chamber-floor, may be drained off through trapped escape-pipes d^3, as shown.

A particular advantage accruing from the described construction of the imperforate partition A and its continuous open throats *a* and *a′*, in combination with the ice-crib D, having the perforated walls, as set forth, is that the entire body of air in the storage-space B′ of the car will rise uniformly as its temperature increases and will pass freely through the throat *a* into the refrigerant-chamber B, and will therein, by a free circulation through the ice-crib D and its contained ice-blocks, descend uniformly to the bottom of the chamber and be forced by the constantly-descending air-current through the throat *a′* again into the space B′. The constant and continuous circulation of the entire body of air in the car through the refrigerant-chamber B will thus be effected and maintained and the formation of eddies or individual air-currents of different directions in the car, as is liable to occur when the partition A is perforated at various points or the refrigerant tank or holder D has continuous and imperforate walls, creating variations of temperature on its exterior face.

A further advantage accrues when the throat *a′* is larger than the throat *a*, in that

the cooled air will pass through the throat a' from the refrigerant-chamber into the storage-space of the car at a less velocity than when the said throat a' is of the same or less size or extent than the throat a, and consequently the objectionable feature of a rapid current or semi-blast of cold air passing into the storage-space of the car, entailing the liability of damage to certain classes of perishable merchandise—such, for example, as fresh fruits—will be avoided.

An upwardly-extended lip or guard e extends across the car-floor on a line below the partition A, thus dividing the floor of the chamber B from that of the chamber or space B′. This lip e may be constituted by turning upwardly the edge of a sheet-metal floor-piece e', arranged on the car-floor in the chamber B, and this metal floor-piece may be made somewhat dishing toward the center so as to carry the drip of the ice-crib toward and into the escape-pipes d^3. The lip e preferably has its upper edge bent or deflected toward the chamber B. The lip will thus serve as a deflector to cause any spattering of the meltage from the ice-crib to be thrown backward onto the floor of the chamber B and prevent its passage into the chamber B′ through the throat a', thereby obviating the liability of perishable goods stored in the car being damaged by moisture from said meltage.

Upon the lower edge of the partition A is fixed the offset a^2, extended or projected horizontally therefrom on the side toward the chamber B, as shown.

The valve C extends laterally of the car and is adapted in extent to fit into and close the throat a'. It is located immediately under the offset a^2, and is carried on a longitudinal axis c, one end of which is stepped into the car-wall, as at c', and the opposite end of which extends through the opposite car-wall, as a c^2, and preferably through a stuffing-box c^3 set in said wall, the external end of the said axis being exposed outside the car-wall, as shown, by means of which the valve may be manipulated from the exterior of the car. The valve C is desirably fixed eccentrically on its said axis, as shown, and with its narrower portion above the axis. The offset a^2 and the narrower or upper portion of the valve C are so proportioned relatively to each other, and the axis of the valve is given bearing, relatively to the offset, so that when the valve is opened its upper edge, which is projected toward the main car-space B′, will be under the offset and within the line of the partition on the side thereof toward the chamber B. By this construction the valve will be guarded from contact with and possible injury by boxes or other merchandise stored close to the partition in the chamber B′. When the valve is closed, its upper edge may take against a flange or stop c^5 on the offset, as shown, while its lower edge may rest against the lip or guard e.

An advantage accrues from the arrangement of the valve eccentrically on its axis, in that when the valve is open its lower or wider portion will project into the chamber B toward and below the ice-crib D, and will serve as a deflector to throw the drip or meltage falling from the crib backward onto the floor of the chamber B, and thus prevent the said drip from passing through the throat a' into the chamber B′.

The principal function of the valve C is obvious, to wit: the regulating or complete stoppage of the air circulation between the chambers B and B′.

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

1. In a refrigerator-car in which a refrigerant-chamber at one end of the interior of the car is separated from the central storage-space of the car by an imperforate partition extending laterally of the car and terminating at its top and bottom edges somewhat below and above, respectively, the car-roof and car-floor, and thereby constituting continuously-open throats above and below said partition, the combination, with said partition, of an offset a^2, projecting horizontally from its lower edge on the side toward the refrigerant-chamber, and a valve C, extending laterally of the car and adapted to close said throat below said partition and eccentrically pivoted on a longitudinal axis under said offset, whereby when said valve is turned to an open position on its said axis its narrower portion will lie beneath said offset and its wider portion will project into said refrigerant-chamber, substantially as and for the purpose set forth.

2. In a refrigerator-car in which a refrigerant-chamber at one end of the interior of the car is separated from the central storage-space of the car by an imperforate partition extending laterally of the car and terminating at its top and bottom edges somewhat below and above, respectively, the car-roof and car-floor, and thereby constituting continuously-open throats above and below said partition, the combination, with said partition, of an offset a^2, projecting horizontally from its lower edge on the side toward the refrigerant-chamber and provided with a depending stop c^5 and a valve C, extending laterally of the car and adapted to close said throat below said partition and eccentrically pivoted on a longitudinal axis under said offset, together with the upwardly-projecting lip e, extending laterally on the car-floor below said partition, whereby when the valve is closed its receptive longitudinal edges will abut against the said stop and lip, substantially as and for the purpose set forth.

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Witnesses:
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