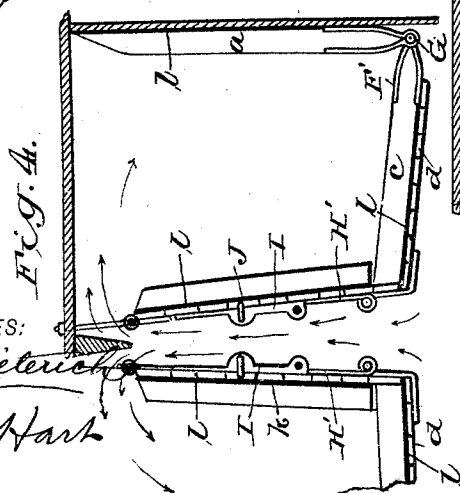
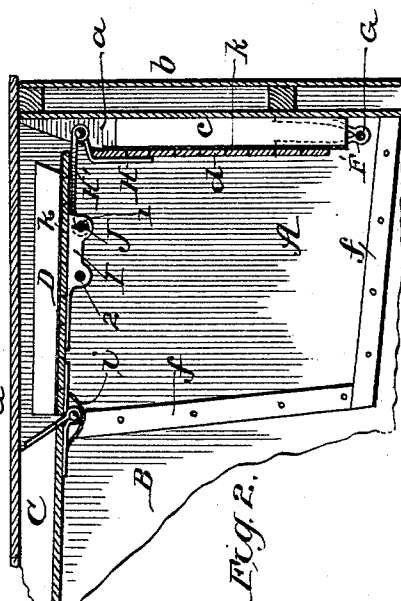
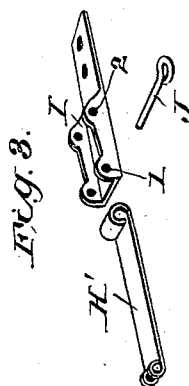
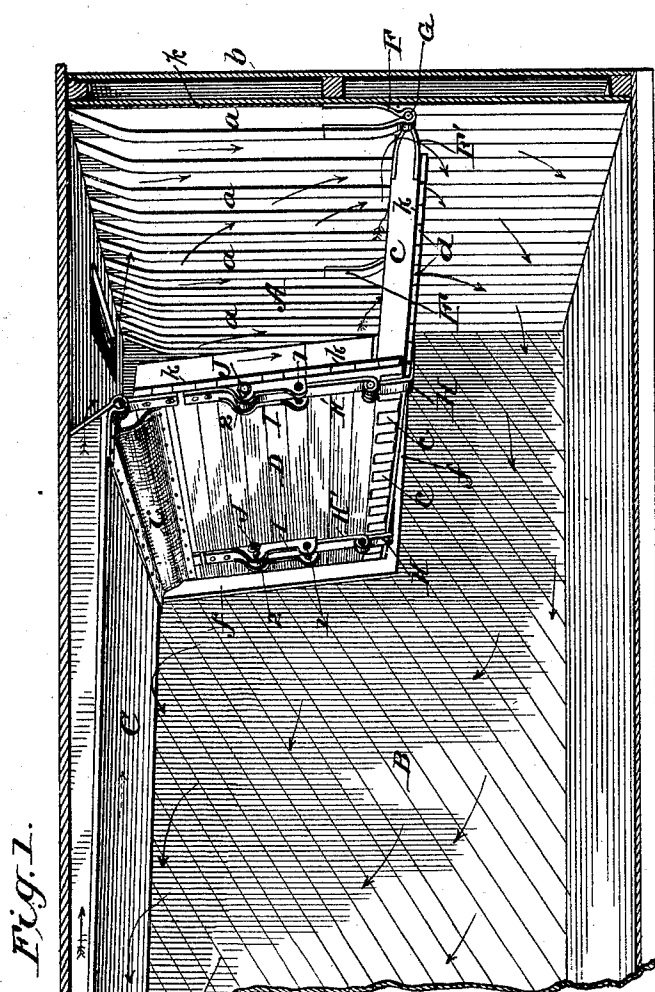


(No Model.)

C. S. HARDY.  
REFRIGERATOR CAR.

No. 509,806.

Patented Nov. 28, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES SAUNDERS HARDY, OF SAN DIEGO, CALIFORNIA.

## REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 509,806, dated November 28, 1893.

Application filed May 15, 1893. Serial No. 474,251. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES SAUNDERS HARDY, of San Diego, in the county of San Diego and State of California, have invented a new and useful Improvement in Refrigerator-Cars, of which the following is a specification.

I have filed an application, Serial No. 457,244, for certain improvements in refrigerator freight cars, the same being also applicable to steam-boats, storage warehouses, &c. The leading feature of such invention is a certain construction of ice-box and its arrangement in the car, whereby its floor (or bottom) and one side are adapted to fold against the end wall and roof of the car, so that when the ice-box is not required for use, the space which its folding sections normally occupy may be utilized for storage of freight requiring no refrigeration. My present invention is in the same line, and relates to the improved means for hinging and supporting the folding floor (or bottom), and fastening it to the swinging side sections when in normal or folded position.

In the accompanying drawings—Figure 1 is a longitudinal vertical section—in perspective—of a box freight car provided with my improvement, the ice-box sections being shown in the normal, or pendent, position, as required for use. Fig. 2 is a vertical section of the same parts, the sections being, however, shown secured in the folded position. Fig. 3 is a perspective view of fastening devices applied to the folding sections. Fig. 4 is a vertical section of a modification, showing the arrangement of adjacent folding ice boxes for use in an ice house.

The ice-box, A, is located at one end and in the upper portion of the car chamber, B, and an inclined draft plate, or false ceiling, C, is applied to the true ceiling of the chamber, substantially as in my previous invention. One side, D, of the ice-box is formed by parallel vertical cleats, *a*, secured to the end wall, *b*, of the car. The folding floor, or bottom, E, of the ice-box is formed of a series of parallel cleats, *c*, and a series of parallel strips, *d*, to which they (*c*) are secured. The said floor, E, rests on fixed stops or projections, *f*, when in normal position, and is hinged to the vertical cleats, *a*, instead of the car wall. For this latter purpose, I employ two sets of ap-

proximately V-shaped leaves, F, F', one set, F, being secured to the pointed lower ends of the vertical cleats, *a*, and the other set, F', to the similar ends of the floor cleats, *c*, and the two sets being connected by a removable pintle, G. It will be noted, that the latter is so located that it is in line with the longitudinal center of each set of cleats, *a*, *c*. By this arrangement I not only avoid attaching the floor, E, to the end wall of the car—which is objectionable—but also bring the two sets of cleats, *a*, *c*, into the relation required to enable one set to fold and lie between the others, so that the two are brought into exact coincidence, as shown in Fig. 2. Further, I am enabled to use a smaller pintle, since the leaves attached to the vertical cleats, *a*, furnish a support for it throughout its length.

The swinging side section, D, of the ice-box is hinged to the end of the ceiling plate, C, and constructed like the floor, E. The free ends of such hinged side and floor are connected by peculiar fastenings which are adapted for adjustment, as required to adapt them to secure the said parts D, E, in both the normal and folded position. These fastenings consist of two parts, or devices, attached, respectively, to the said side, D, and floor, E. One fastening consists of a plate, H, secured to the floor, E, near its free edge, and a bar, H', which is hinged to said plate and provided with an eye at its outer end. The other fastening is secured to the side, D, and consists of an iron socket-plate, I, having parallel sides, or ears, which are provided with two sets of coincident holes, 1 and 2. The free end of the hinged bar, H', is adapted to enter the space between the ears, of plate, I, and when the side, D, and floor, E, are in the normal position, Fig. 1, the eye of said bar coincides with the lower set of holes, 1, in the socket-plate; but, when the side and floor are folded, Fig. 2, the eye of bar, H', coincides with the upper holes, 2, in said socket-plate, so that a pin, J, may be inserted, as shown, to lock the parts together and complete the fastening.

It will be seen that in the abnormal, or folded, position of the side D, and floor, E, the free edge of the former rests upon the portion of the hinged bar, H', which is adjacent

to its fulcrum, so that the latter acts as a lever when its free end is forced up into the socket of plate, I, thereby raising the side, D, far enough to permit the pin, J, to be easily inserted in the holes, 2, which then register with the eye of bar, H'. In such folded position of the side, D, and floor, E, they occupy scarcely an appreciable amount of the space available for storage in the car, so that it may be used for transportation of any class of freight for which the ordinary car is adapted.

The course taken by the air in circulating through the ice-box, A, car chamber, B, and passages between the ceiling, C, and the car-roof, is indicated by arrows. I apply one or more leather, or rubber, sheets, *k*, to cover the space between the false ceiling, C, and the swinging side, or section, D, for the purpose of preventing passage of air at that point.

I apply sheets, *k*, of zinc, tin or any other suitable non-corrosive material as a lining for the walls of the ice-box. It is arranged between the cleats, *a*, and end wall, *b*, of the car, also between the cleats, *c*, and strips *d*, of the floor E. It is likewise applied in practice to the end walls of the ice-box and between the ceiling proper and the tapered beams to which the latter is secured.

In Fig. 4 I illustrate an arrangement of parts for composing two opposite ice-boxes for an ice-house, the same being adapted to fold when not required for use. Beneath all the cleats I apply strips *l*, of rubber to perfect the sealing of joints.

What I claim is—

1. In a refrigerator car, the combination, with the cleats attached to the vertical wall of

a car, and the floor section having transverse cleats, of the two sets of V-hinges applied to the ends of the cleats and connected by a pintle which is located in line with the longitudinal center of the said cleats, as shown and described, for the purpose specified.

2. The combination, with the folding ice-box sections, one being hinged to the ceiling and the other being the floor section, of a bar hinged to the free edge of said floor section and having an eye at its outer end, and a socket plate attached to the free edge of the adjacent side section, and having holes located at different distances from its ends, and a pin adapted to be inserted in said holes, to lock the said bar at different points in the socket, as required for securing the sections in the open or folded position, as shown and described.

3. The combination with the hinged and folding ice-box sections of the means of detachable and adjustable connection between the floor and one of the side sections, which consist of an angular plate attached to and projecting over the free edge of the floor section, a bar hinged to the outer end of such angular plate, and a socket plate attached to the edge of the adjacent side section, as shown and described, whereby when the floor section is folded in vertical position, the said bar lies horizontally and supports the free edge of the free side section as specified.

CHARLES SAUNDERS HARDY.

Witnesses:

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C. H. WESCOTT.