

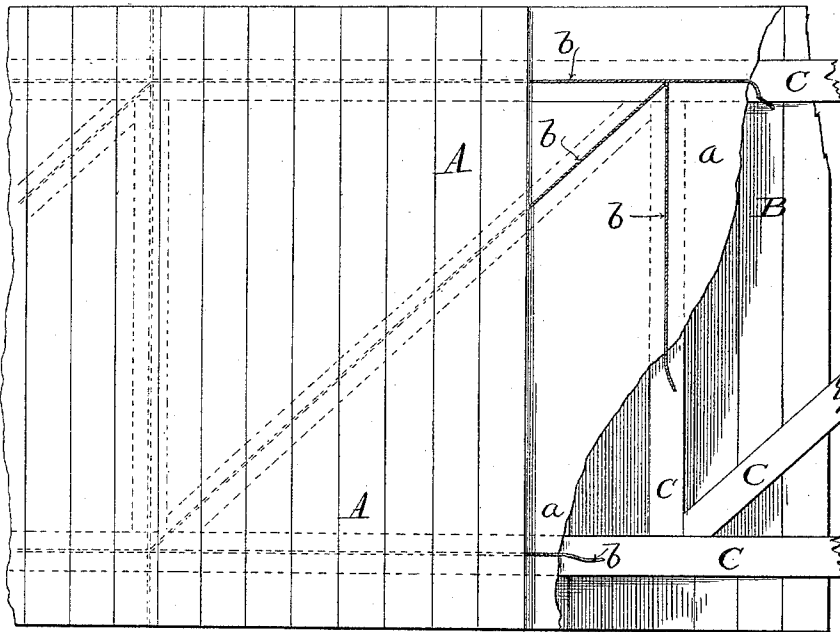
(No Model.)

J. F. HANRAHAN.  
REFRIGERATOR CAR OR BUILDING.

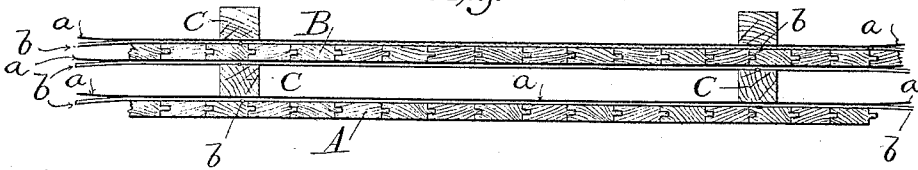
No. 453,047.

Patented May 26, 1891.

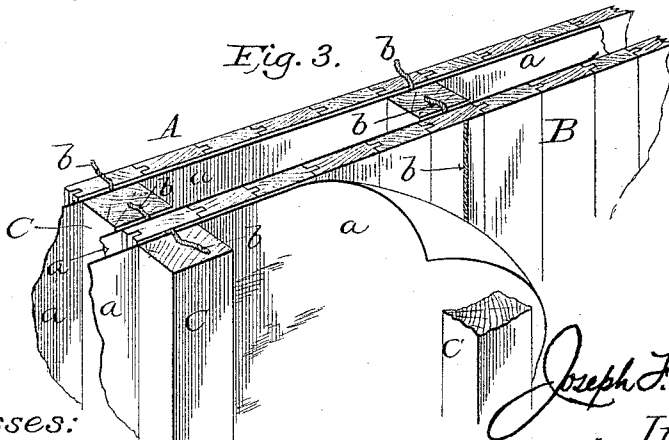
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:

James F. Duhamel  
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# UNITED STATES PATENT OFFICE.

JOSEPH FRANCIS HANRAHAN, OF DETROIT, MICHIGAN.

## REFRIGERATOR CAR OR BUILDING.

SPECIFICATION forming part of Letters Patent No. 453,047, dated May 26, 1891.

Application filed October 25, 1890. Serial No. 369,303. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH FRANCIS HANRAHAN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Refrigerator Cars and Buildings, of which the following is a specification.

My invention relates to refrigerators, refrigerator-cars, refrigerator-buildings, and like structures; and it consists in a novel construction of the walls thereof, as hereinafter fully set forth and claimed.

In the drawings, Figure 1 is a face view, partly in section, of the side of a refrigerator-car constructed in accordance with my invention; Fig. 2, a top plan view of the same, and Fig. 3 a sectional perspective view on an enlarged scale.

I desire to state here that the framing of the car or other structure forms no part of the present invention, and may be modified as desired, and while I have shown an arrangement of framing such as is commonly employed and preferred by me, I do not wish to be understood as limiting myself to such an arrangement.

A indicates the outer sheathing, and B the inner sheathing, formed, preferably, of tongued and grooved boards and separated by uprights or standards C, secured to the car-sills. To the inner face of the sheathing A is applied a layer *a* of paper, while between the paper and the sheathing is placed at points opposite the uprights one or more cords or strings *b*, the cords or strings extending lengthwise of the timbers C, whether they be arranged vertically, horizontally, or diagonally. Inasmuch as the sheathing is firmly united to the timbers or uprights, (which in reality form the frame of the car,) the paper and cord between the sheathing and timbers will be firmly clamped together, the cord or string embedding itself into and indenting the paper as well as the timbers and sheathing. The inner sheathing B has applied to its outer face a layer *a* of paper, and of cord, string, or twine *b*, and is firmly united to the inner faces of the uprights or timbers C. From this construction it will be seen that there is formed in the wall of the refrigerator or like structure a series of dead-

air spaces separated from one another by the timbers C, and it will also be observed that by reason of the cords or strings it will be impossible for the air to circulate from one air-space to another. To insure the formation of an impervious wall, the interior sheathing B will be provided with a layer of paper on its inner face, and cords or strings will be inserted between the sheathing and the paper and timbers, as before described. A fine wire might be used in lieu of the string; but I prefer the latter. The best results will be attained by using two layers of paper on the faces of the sheathings and inserting the cord, wire, or string between the two layers.

I do not wish to limit myself to any particular kind of paper, nor, indeed, to paper, as it is obvious that other materials could be substituted for the paper with fairly good results and without departing from my invention.

Instead of placing the cord between the inner face of the outer sheathing and the layer of paper, the paper may be placed next to the sheathing and the cord placed between the timbers and paper.

I am aware that refrigerator-cars and similar structures have been provided with paper linings and with dead-air spaces, and I am also aware that it has been proposed to make a tight joint by the insertion of an elastic packing into grooves formed in the contiguous edges of boards, and to these constructions I make no claim.

Having thus described my invention, what I claim is—

In a refrigerator or like structure, the combination, with the sheathings A B and timbers C, dividing the wall into dead-air spaces, of the layers of paper applied to the sheathings, and the cords or strings interposed between the timbers and sheathings and adapted to embed themselves into the latter and into the paper.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOSEPH FRANCIS HANRAHAN.

Witnesses:

FREDERICK W. WHITING,  
JOHN WENDELL ANDERSON.